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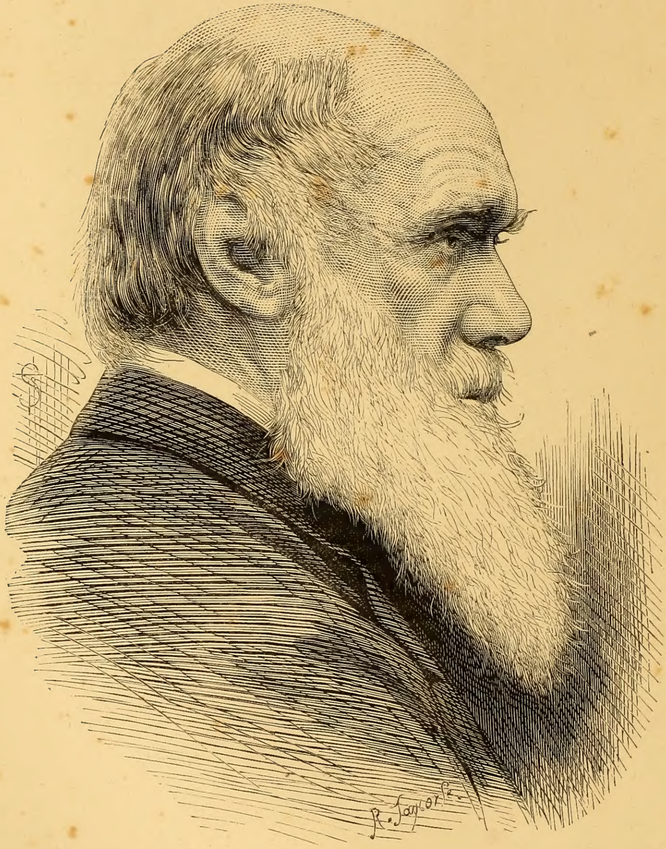

CHARLES DARWIN.

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THE GARDEN

AN

ILLUSTRATED WEEKLY JOURNAL

OF

GARDENING IN ALL ITS BRANCHES.

FOUNDED BY WILLIAM ROBINSON, Author of "Alpine Flowers," &c.

> THIS IS AN ART
> WHICH DOES MEND NATURE: CHANGE IT RATHER: BUT
> THE ART ITSELF IS NATURE.—Shakespeare.

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CHARLES DARWIN.

MR. DARWIN is one of the profoundest thinkers of the present day, and to be so, in this intellectual age, is to be a king among men. Although he has achieved his greatest triumphs in fields with which we have little connection, yet the interest he has taken in plants and plant life clearly identifies him with horticulture. Mr. DARWIN's first work, and still to our mind his best work, is his "Journal of His Voyage as Naturalist of the 'Beagle.'" This may not inaptly be called the "Waverley" novel of naturalists. We may not have read it quite so often as the "Antiquary" or "Rob Roy;" but, as with them, whenever we do re-read it we do so with renewed pleasure. There is a freshness and clearness about it, combined with a power of description that never palls—and there is the same delightful under-current of thought upon every subject that gives such a charm to his other works; he not only sees what is before him and tells one what he sees in vivid language, but turns it over in his mind, and takes one along with him, confidentially as it were, as he does so. To our mind it is one of the most delightful books in the English language. His subsequent, and what we suppose we must call his greater, works have probably, from their very nature, less of clearness, freshness, and simplicity than the "Journal." From the "Journal" we could cite many passages having interest for the horticulturist. Take the following description of tropical scenery in South America:—"When quietly walking along the shady pathways, and admiring each successive view, one wishes to find language to express one's ideas. Epithet after epithet is found too weak to convey to those who have not visited the inter-tropical regions the sensation of delight which the mind experiences. I have said the plants in a hothouse fail to communicate a just idea of the vegetation, yet I must recur to it. The land is one great wild, untidy, luxuriant hothouse, which Nature made for her menagerie, but man has taken possession of it, and has studded it with gay houses and formal gardens. How great would be the desire in every admirer of Nature to behold, if such were possible, the products of another planet; yet, to every one in Europe, it may be truly said, that at the distance of a few degrees from his native soil the glories of another world are open to him. In my last walk, I stopped again and again to gaze on these beauties, and endeavoured to fix for ever in my mind an impression, which, at the time, I knew, sooner or later must fail. The form of the Orange tree, the Cocoa-nut, the Palm, the Mango, the tree Fern, the Banana will remain clear and separate; but the thousand beauties which unite these into one perfect scene must fade away; yet they will leave, like a tale heard in childhood, a picture full of indistinct but most beautiful figures." Turn again to his observations on the character of the southern part of America in relation to the production of fruit. "The climate of the southern part of South America presents many phenomena of the highest interest. It has long been observed that there exists some essential difference between it and that of the countries in the northern hemisphere. I have already remarked on the surprising contrast between the rank vegetation of the broken west coast, consequent on the humid climate, as compared with the dry and sterile plains of Patagonia. The clouded and boisterous state of the atmosphere is necessarily accompanied by a decrease in extreme temperature; hence we find that fruits which ripen well, and are very abundant—such as the Grape and Fig—in latitude 41°, on the east coast, succeed very poorly in a lower latitude on the opposite side of the Continent. The result is more strongly marked if we take Europe as the standard of comparison. In Chiloe, latitude 42°, corresponding to the northern parts of Spain, Peaches require the greatest care, and seldom produce fruit, but Strawberries and Apples succeed to admiration. At Valdivia, latitude 40°, or that of Madrid, standard Peaches bear abundantly, Grapes and Figs ripen, but are far from common, Olives seldom even partially ripen, and Oranges not at all, yet in Europe this is the parallel most productive of these fruits. Even at Conception, latitude 36°, Oranges are not abundant, though the other named fruits succeed perfectly. At the Falklands, in the same latitude as the south of England, Wheat very seldom comes to maturity; but we ought to feel little surprise at this when we hear that in Chiloe, latitude 42°, the inhabitants are frequently compelled to cut their Corn before it is ready and bring it into their houses to dry."

Such notices as the following, too, of plants or vegetable productions met with in his travels are frequent. At Chiloe he "one day noticed some very fine plants of the Panke (Gunnera scabra), which somewhat resembles the Rhubarb on a gigantic scale, growing on the sandstone cliffs. The inhabitants eat the stalks, which are sub-acid, and tan leather with the roots, and prepare a black die from them. The leaf is nearly circular, but deeply indented on its margin; I measured one which had a diameter of nearly 8 feet, and, therefore, a circumference of no less than 24 feet! The stalk is rather more than a yard high, and each plant sends out four or five of these enormous leaves, presenting altogether a very noble appearance."

It will thus be seen that from the very first, and even in a work so unlikely to elicit them, as the journal of a sea voyage, plants and horticulture occupied a fair share of his attention.

His next great work in which plant life occupies much attention was the origin of species, and here we are sure we need not remind the reader that many of his arguments and illustrations are drawn from the phenomena observed by himself in horticulture or recorded by horticulturists. We are not going to re-open any of the questions discussed in that work, but we may be allowed to cite Mr. DARWIN himself in illustration of some of the positions taken by him in it. Starting from the admitted transmission of qualities from parents to their children, he argued for their gradual alteration by process of natural selection into general progression, improvement, or better adaptation for their condition of life. Now, we have in him an example of both—we have a striking instance of the transmission of qualities by men to their descendants, and we have also an example of the fact that while the identity of the qualities cannot be disputed, neither can the fact of an alteration in them for the better be denied. No one can have read the works of Dr. ERASMUS DARWIN—"Zoonomia," "The Botanic Garden, or the Loves of the Plants," without recognising in them much of the same qualities of intellect that are character-istic of his descendant.

His succeeding works still more directly interest the horticulturist. These consist of his papers on the "Dimorphism of the Primrose, of Linum, and of Lythrum Salicaria," and also those on the "Character and Hybrid-like Nature of the Offspring from the Illegitimate Unions of Dimorphic and Trimorphic Plants," his larger work on the "Variation of Animals and Plants under Domestication," his work on the "Various Contrivances by which British and Foreign Orchids are Fertilised by Insects, and on the good effects of Crossing," his paper on the "Movements and Habits of Climbing Plants," and lastly, his work on "Insectivorous Plants," which latter we have only lately reviewed in this journal, and need not therefore again recur to. All these bear directly in some form or other on the cultivation and propagation of plants under cultivation. Those relating to the dimorphism or trimorphism of certain plants and the crossing of them, have thrown a flood of light on the phenomena of hybridisation—all tending to show that there is no more reason to think that species have been specially endowed with various degrees of sterility to prevent them crossing and blending in Nature, than to think that trees have been specially endowed with various and somewhat analogous degrees of difficulty in being grafted together in order to prevent them becoming inarched in our forests. The proof of this commenced with Mr. DARWIN asking Nature the meaning and purpose of the difference between pin-eyed and thrum-eyed Primroses. From one step to another, sometimes with the concurrent assistance of other observers, such as Mr. SCOTT, then in the Royal Botanic Gardens, Edinburgh, but chiefly by his own independent observations, Mr. DARWIN extended his experiments on their comparative fertility over a large number of species of Primula, Linum, and Lythrum, and established, beyond a doubt, that whether the Primrose was pin-eyed or thrum-eyed, that is, whether or not the style or the stamens were to be seen at the mouth of the tube of the corolla—in other words, wherever the one was longer than the other, they were unable adequately to fertilise the ovary; whereas, if neither was visible at the mouth of the corolla, which was found to be equivalent to their both being at the same level half way down, then they fertilised completely. The first natural inference, of course, would be that the unfertility of the pin-eyed or thrum-eyed flower was due to the style and stamens being stationed at a distance from each other, but Mr. DARWIN at once removed this element of error by going through the process of trying to fertilise them artificially. The pollen, too, was found to be of different dimensions in the two cases, and the style also different. When the experiment was made with different flowers, the stamens of the thrum-eyed flower were found to fertilise the pin-eyed style, both being at the same level at the mouth of the tube of the corolla, while the stamens of the pin-eyed flower fertilised the style of the thrum-eyed flower, they being each respectively situated low down in the tube of their corolla. This was only an experiment with other flowers of the same species, but it was also shown that in experimenting with distinct species the pollen of one of the two forms of the same species, and not of the other, will fertilise a distinct species. It has long been known that A will fertilise B, and B will not fertilise A; but the extension of such an exception to the two forms of the same individual flower was a new and important step. Further, although the attempt to fertilise the pin-eyed and thrum-eyed flowers with the pollen of their own stamens, may, in a general way, be called ineffectual (that is, that they produced a good deal less seed than the other unions), they were not absolutely and completely sterile, but Mr. DARWIN found a remarkable resemblance in many points between the seed so obtained and their offspring, and those of hybrid unions between different species. We must refer the reader to Mr. DARWIN'S papers for these points of resemblance, besides much other interesting information, contenting ourselves with saying that the opinion expressed by Mr. DARWIN on the subject in 1864, seems to us still well founded. "Although good is gained," said he, "by the inevitable crossing of the dimorphic flowers, yet numerous other analogous facts lead me to conclude that some other quite unknown law of Nature is here dimly indicated to us."

We cannot follow this subject further, nor have we left ourselves space to expatiate as we should like to do on his interesting paper on "Climbing Plants," and on the contrivances whereby Mr. DARWIN shows that certain Orchids and other plants are alone fertilised by insect agency. Both are full of details worked out with the greatest care, and both are replete with instances of remarkable adaptation of structure to purpose—what the natural theologian calls evidences of design. So marked are these that one of Mr. DARWIN'S followers and admirers, writing recently in the pages of one of our contemporaries, enthusiastically exclaims, "Thanks to the laborious experiments of DARWIN—thanks to the example he has set, the purpose of this, as of many other points of structure passed over before as merely curious, has been made apparent. No more persuasive apostle of natural theology, no more powerful advocate of the argument furnished by design and adaptation, ever lived than CHARLES DARWIN."

THE GARDEN.

VOL. VIII.

THE JAPAN LILIES.

By C. M. HOVEY.

Since I sent you my last article on Lilies I have thought, from the increasing interest taken in these flowers, that you might like to have the following details respecting the production of new varieties. It is stated in The Garden (p. 296, Vol. VII.) that "twelve years ago few gardens contained any Lilies at all, beyond, perhaps, a few of the Japanese kinds in pots, all the other hardy kinds having been discarded." If this be so, we Americans can claim to have been in advance of our English friends in Lily culture; for, in 1845, we had at least ten kinds under culture, and, in 1855, had six beds, 80 feet long and 5 feet wide, containing as follows:—Three beds of Japan Lilies—speciosum, s. album, s. punctatum, s. roseum, and hundreds of seedlings; one bed of candidum, tigrinum, aurantiacum, and longiflorum; one bed of Browni, eximium, Takesema, excelsum, Groom's hybrids, venustum, and monodelphum; and one bed of canadense and superbum. About that time we read an article in a monthly English journal, which was copied in our "Magazine of Horticulture" (1852, Vol. XVIII.), stating that, "except in a few favoured localities, Japan Lilies would never be popular border flowers in England, inasmuch as they show flower towards the middle or end of September, a season in which the blooms were no sooner expanded than they were disfigured by the effects of the damp atmosphere at that period." With us Japanese Lilies begin to open their first flowers on the 20th of August, almost to a day, when our weather is warm and dry, and they continue in great beauty until destroyed or defaced by frost, about the 2nd or 3rd of October. We have noticed the bad effects of damp weather on the blooms, and, to prolong them in perfection, have put an awning of cotton cloth over the beds to protect them from heavy dews and the hot sun, which immediately affect the delicate texture and brilliant spotting of the petals. The object of my remarks is, however, to give an account of my experience in the production of seedlings, so as to afford some guide to those who may desire to extend and increase the variety of these beautiful plants. With the introduction of our Californian kinds there is more and varied material now to work with than formerly. L. auratum does not appear to be very successfully treated, and it is believed that, notwithstanding the tens of thousands of its bulbs that are annually imported overland and sold in our markets in very fine order, not one in ten can be found alive the second year. There is no doubt it is much less hardy than speciosum, requires a lighter and warmer soil, and a drier situation, and will not readily submit to the rough and ready cutting under which the latter will thrive, speciosum being, in fact, just as tough as tigrinum. L. auratum is difficult to raise from seed. It usually vegetates the first season, but the seedlings appear weak, and gradually disappear; at least, such has been my experience in regard to it. Three years ago, I had four very large plump seed pods on one plant, some of the flowers of which were fertilised with speciosum; and, though only a small portion of the seed was fertile, what did vegetate gradually faded away under the same treatment as speciosum. On the other hand, as I stated previously, speciosum, fertilised with auratum, seemed to furnish seedlings, which received renewed vigour from fertilisation. My first experiments of any extent were commenced in 1846, when I had some two dozen fine plants in pots, grown for that purpose, many of them being 7 feet high. I then fertilised speciosum with superbum, candidum, s. album, and chalcedonicum; punctatum with speciosum, aurantiacum, superbum, and chalcedonicum; album with speciosum, and some others. Three years is the usual time for the seedlings to bloom; and, as they rarely make their appearance until the second year, it was in 1850 that they produced flowers. By this time (three years) many of the labels, without corresponding with the above crosses, had rotted off, and were unfortunately lost. However, suffice it to say, that to us, who watched them with a florist's eye, every one appeared to differ. In some, the petals were much reflexed; in others, they were narrow; some were rosy, others very deeply covered; some of the spots or papillæ were small, others large; some of the spots crimson, others almost black. The worst among them were better than the old speciosum; but I found my list too long, and the distinctions too fine, except to those who could—like the true Tulip fancier—readily distinguish minute differences; and, after cultivating them for three or four years, I selected the best nine, and named them as follows:—Melpomene, Terpsichore, Erato, Urania, Polyhymnia, Clio, Thalia, Calliope, and Euterpe—names under which they were subsequently distributed throughout the United States. I soon ascertained that there was a vast difference in the character of the bulbs; some of the latter were increased with great difficulty, and when in later years I had hundreds of bulbs of Melpomene, I only had a dozen or so of Euterpe. They would not make offsets, either above or around the old root; but, from want of time, I did not find the opportunity of ascertaining and recording which crosses were affected in this way. I continued my experiments in succeeding years, in the way of cross-breeding, but kept no record of them. I only know that some crossed with longiflorum and others, completely ruined the shape of many of the flowers. Among all my seedlings there is not a pure white, although album was fertilised with speciosum, and, as is generally supposed, the female parent has a prevailing influence on the progeny. There was not even a pink spotted one like punctatum, as one would have supposed there would have been. Some years subsequently, I raised several whites, and one long, large, flower, quite distinct, but it accidentally got thrown out of the pot when in a dormant state. I also raised a very distinct variety, with flowers about half-way in size between those of chalcedonicum and speciosum, with stems more densely clothed with leaves, and the petals blush-white, with pale lilac-rose spots. This I named "Eva." It increases slowly, and is still rare in collections, but it is a beautiful variety. To show how enthusiastic I was about this Lily, I may mention that in 1871 I had over a pint of seed, and after disposing of a good deal of it I still have nearly half the quantity. It vegetates when three or four years old. Long ago the late Mr. Groom gave us some account of his seedlings, between bulbiferum (elegans, Baker) and atrosanguineum, and when at his nurseries, in 1844, I bought the set, eighteen in number, some of the names of which were Voltaire, Talisman, Rubens, Vulcan, &c.; at first I grew them in pots, fearing they might not be hardy; but in this way I lost some of them, and as I gave so much attention to the Japan sorts, they were neglected, and I turned them out into a bed where they flourished well. They grew about a foot high, and produced an umbel, consisting of from three to six flowers, the colours being deep dull blood-red, specked and mottled with purplish-crimson. They were, however, too much alike, only lasted in flower a short time, and did not increase rapidly. Are they still in cultivation in England? As regards improvement, I do not expect much from the yellow and red kinds crossed with each other. If, however, a handsome lemon, or buff or buff-spotted, could be produced, it would be an acquisition. The red and yellow are strong; but it is only the clear and delicate white grounds that are desirable. All may be crossed with speciosum and auratum, by which the size may be increased.

A New Public Garden for Manchester.—We hear that a scheme for forming a winter garden on a grand scale, and a good public garden generally, is now being developed at Manchester. The movement is directed by gentlemen who aim at creating an establishment at once instructive and elevating in its influences. It has the support of the Bishop of Manchester, the mayor, the town clerk, and the most influential gentlemen connected with the city. Its history is briefly this: Mr. Ellis Lever originally bought Mr. S. Mendel's establishment at Manchester, and then offered it to the town council for the same sum he had paid for it, offering, at the same time, £20,000 towards making a public garden of this famous place, which should be in all respects worthy of the city of Manchester. The town council declined the offer, and since then Mr. Ellis Lever has himself taken the matter in hand, and, in connection with a gentleman of much experience in like matters, is now engaged in carrying out the scheme we allude to, and of which we hope in due time to give further particulars. We never knew of a better opportunity of making a noble city garden, inasmuch as Manley Hall now contains many features only to be found in gardens of the higher class, and even rarely in them. As Manchester is famous for carrying out public aims of this kind in the most successful manner, we hope for a garden worthy of it, and which may in its way prove as great a credit to it as the Assize Courts, the new Town Hall, and the celebrated Art Treasures collection.

Influence of certain Compounds on the Germination of Seeds.—Nearly eighty years ago it was asserted (says the "Academy") by Smith and Barton that camphor had power to hasten germination; a similar property was subsequently attributed by Goeppert to chlorine, bromine, and iodine. These statements have been put to the test of experiment by Heckel ("Comptes Rendus," 3 May, 1875), and found to be correct. The seeds of Raphanus sativus, exposed to the action of pure water, began to germinate after an average interval of eight days; similar seeds, kept moist with iodine water, germinated in five days; with bromine water in three, with chlorine water in two days. The monobromide of camphor was found to exhibit even greater energy than either of its constituents taken separately, or than a simple mixture of bromine and camphor, germination occurring after a mean interval of thirty-six hours. No explanation of this singular property is suggested. The alkaline borates and silicates were found to retard germination, even in relatively small proportions; stronger solutions checking the process for an indefinite period. Arsenious acid and the soluble arseniates prevented germination altogether by destroying the embryo.

NOTES OF THE WEEK.

—— AMONG all the Strawberries that come to Covent Garden Myatt's British Queen still retains the first position, both as to flavour, price, and the quantity sold. This fact is, of course, well known to most London Strawberry growers; but, in many country gardens, this fine variety is so often discarded for newer and less meritorious ones that the above facts may be worth bearing in mind.

—— THE rather uncommon Quassia amara has flowered for the first time in the Botanic Gardens, Regent's Park. The flowers are handsome and very showy, though produced on a poor plant. If well grown and flowered it would prove one of the most splendid of hothouse shrubs. The Sacred Bean (Nelumbium speciosum) is also in bloom in these gardens, and in an unusually fine condition.

—— AT the Regent's Park fruit show, on Wednesday last, Mr. Sage, gardener to Earl Brownlow, at Ashridge, exhibited a cluster of the dwarf Banana, the weight of which was 80 lbs. In size, ripeness, and freshness, this is the most perfect cluster of Bananas we have yet seen.

—— A PLANT of the green-tailed Dendrochilum filiforme, in the Royal Exotic Nursery at Chelsea, is now furnished with at least sixty slender spikes of flowers. It is one of the most interesting of Orchids; its rows of tiny pale green flowers, arranged on slender wire-like stems, remind one of golden filagree work of the most exquisite description.

—— DISA GRANDIFLORA, a plant at one time considered to be almost uncultivable, is now producing at Chatsworth from seven to nine flowers on a spike. Mr. Leach, of Clapham, who was the first to show us how to flower this handsome Cape Orchid, never achieved such success as this, half the amount of blooms here named being the number usually found on his spikes of it.

—— MR. RENDLE has brought to our office specimens of the new tempered (toughened) glass, which he is about to employ in the construction of glass houses. It is perfectly clear, and bears the test of being thrown many feet without breakage. He proposes to use it for the roof of the Royal Aquarium and Winter Garden at Westminster.

—— AMONG hardy flowers now in bloom in the grounds of the Crystal Palace at Sydenham are some large masses of Blue Larkspurs, and a fine strain of Dianthus laciniatus Heddewigii is now very effective, the colours varying between white and the deepest velvety crimson. Individual blooms of this Pink measure, in some cases, over 2 inches in diameter, and are the produce of seed sown last autumn.

—— THE beds of dwarf Roses in the neighbourhood of the Rose Temple, at the Crystal Palace, are now most attractive, many of the newer kinds of Roses being in full blossom there. Some of these beds are margined with dwarf plants of the common China, or old Monthly Rose, and others are edged with little bushes of the old crimson China, the effect in both cases being excellent. Climbing Roses on the terrace walls are also now blooming freely.

—— THE competition for the Carter Challenge Cup takes place next Wednesday at the Royal Horticultural Society's Gardens at South Kensington, and, as some doubts have been expressed relative to gardeners in the more northern parts of the kingdom being able to produce Carter's Champion Runner Bean at this early season, Messrs. Carter, in order to make the competition as great and as general as possible, have consented to make its production on the part of the exhibitor optional, as well as that of the Fern-leaved Parsley. The revised schedule therefore is, Scarlet Runner Beans (optional), any good variety of Parsley. Eighteen pods of Beans in all cases must be exhibited.

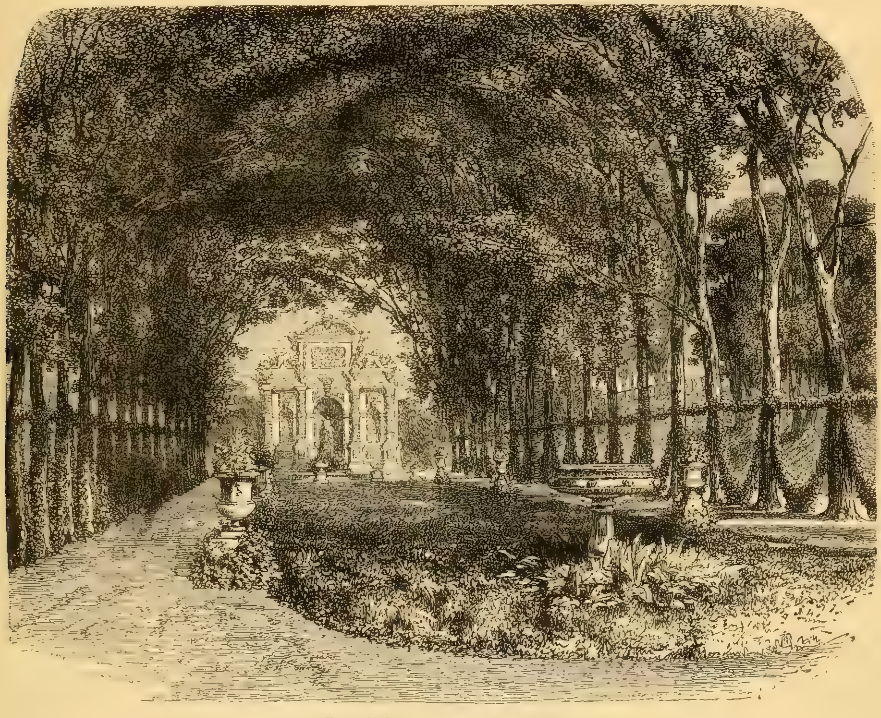
—— THERE is now, in Professor Owen's garden at Sheen, a large bed of dwarf-stemmed Roses in splendid bloom; towards the middle of the mass strong stems of Lilium auratum are springing up, and at the centre is a noble tuft of Yucca gloriosa, while, towards the margins, Mignonette and Pansies furnish the ground. The combination is effective and artistic in a high degree; it replaces tender bedding plants, which, to the Professor, were always a source of trouble and rarely satisfactory in effect; it is inexpensive, entailing no cost beyond that of the original planting; and is a source of pleasure to all who see it. It is one of many like arrangements which is an advance on bedding out on the one hand and the mixed border on the other.

—— THE stately Cordyline indivisa is now blooming vigorously in various gardens in Ireland, where it grows freely without protection.

—— THE index and title page for the volume ending Midsummer, 1875, together with a portrait of Mr. Ninian Niven, will be published with next week's number of THE GARDEN.

THE FOUNTAIN OF THE LUXEMBOURG.

Perhaps the most charming effect in the very interesting Luxembourg Garden is that near the fountain Debrosse—indeed, for a fountain, it has the best effect we have noticed in any garden, but this results from the disposition of vegetation near at hand. Before the fountain is a long water-basin, and on each side of this there is a line of fine Plane trees, which meet overhead and form a leafy arch. Between the trees, Irish Ivy is planted, and trained into rich green wreaths, touching the trees at about 8 feet from the ground. Above the Ivy, there is trained another long wreath of Virginian Creeper, with a very slight fall between each pair of trees. The stately stems of the Planes, their fresh foliage and that of the well-formed wreaths which furnish the lower parts of their stems, are beautiful. The abundance and grace of the vegetation set off, so to speak, the sculptor's work to the best advantage, and the result is probably as satisfactory as is possible, where geometrical or architectural features are introduced in a garden.



Fountain in the Luxembourg Garden.

Violets for Winter Blooming.—We have at present a row of Czar Violet, in patches about 400 feet long, at the bottom of a south wall. These flower freely and long in spring and early summer. The runners are chopped off with a spade several times during the season to keep the shoots vigorous, which get a good size in a single season, and about November and onwards we take up a number of patches at a time, pot them in 8-inch pots, and put them into the Vineries or Peach-houses, or anywhere convenient, where there is a gentle heat. Thus treated flowers quickly make their appearance, large and sweetly scented; and, though the plants do not continue to bloom for a very long time, we have plenty of them to fall back upon, and, therefore, introduce another batch.—J. S. W.

TREES AND SHRUBS.

THE MOCK ORANGES.

The Syringas, or Mock Oranges, rank among the most effective and beautiful of all perfectly hardy and deciduous-leaved flowering shrubs. All of them have white or cream-coloured highly-fragrant flowers, and they are all very similar in foliage; hence, a selection of three or four species or varieties is sufficient for all purposes, except where the object is to form a collection. Probably the total number of species does not exceed ten; indeed, we believe that Maximowicz refers all the Old World forms to one species, and the North American forms are very difficult to distinguish. The principal thing to observe in selecting varieties for general planting in mixed shrubberies is their season of flowering. For instance, at the present date (June 25), the earlier-flowering ones are over, and the latter ones just coming into bloom. The earliest is Philadelphus coronarius, which, as a rule, begins to flower about the middle of May. This species has been cultivated in Britain now nearly three centuries, and was, till within the last few years, the only one commonly seen. It is now abundant in the south of Europe, whence we obtained it in a wild state; but some writers, among others Professor Koch, the author of the "Dendrologie," think that it came originally from the East. Be that as it may, for gardening purposes it is one of the species that we should recommend, because it is the first in bloom. This was the Syringa alba of Bauhin and other herbalists; hence the popular name of Syringa, or Seringat of the French, which might well give way to the more appropriate one of Mock Orange, because the generic name of Syringa has been reserved for the Lilacs, the common one of which was the S. cœrulea of Bauhin and his contemporaries. The flowers, though much larger than those of the Orange, have a general resemblance to them, and they are also very odoriferous, without possessing the delicate perfume of the Orange blossom; indeed, their odour is too powerful for them to be employed extensively in bouquets, though agreeable to most people in the open air. There is a double-flowered variety which, in our opinion, is not superior, if even equal, to the common single kind. A variety with variegated foliage may suit some tastes, but it is not one of the small number of really indispensable members of its class. To alternate with P. coronarius, a pretty and very distinct species or variety, P. Satsumi, sometimes called P. chinensis, may be selected. It is of comparatively recent introduction, not having been known in this country previous to 1851. We do not purpose giving technical descriptions here, but we may observe that this is readily known by its very slender branches and dwarfer habit, as compared with other species, and its long narrow leaves. It flowers almost as early and quite as profusely as P. coronarius, and it is likewise sweet-scented. Another fine Old World form is the Himalayan P. tomentosus. The plate in Royle's "Illustrations of Indian Botany" gives a very inadequate idea of its beauty. It comes into bloom early in June, and bushes of it were literally covered with clusters of large flowers about a fortnight ago in the neighbourhood of London. This differs from the ordinary form of P. coronarius in having a coating of short soft hairs on the under-sides of the leaves, and is readily distinguished in a living state in gardens, though Dr. Brandis does not accord it even the status of a variety. Turning to the New World we have a number of very beautiful species and varieties, most of which have considerably larger flowers, and do not begin to bloom till the end of June or beginning of July. The first introduced from this region was P. inodorus, a species with scentless flowers and long-pointed smooth leaves, which appears to have been in cultivation in 1738. The following year is given as the date of introduction of P. Lewisii, which has smaller flowers than the other North American species mentioned below. P. hirsutus, a dwarf form, with very hairy leaves, appeared in 1820, and was re-introduced by Messrs. Veitch a few years ago, and figured in the "Botanical Magazine." But it is to P. grandiflorus, first introduced in 1811, we would call attention. It bears the names, or rather, in some cases at least, slight varieties bear the names speciosus, latifolius, floribundus, &c. This is a tall-growing shrub, from 8 to 12 feet high, with irregularly-toothed leaves and fragrant flowers, nearly double the size of those of P. coronarius, and, as already mentioned, it does not begin flowering until the latter is nearly or quite over. P. Gordonianus is another North American species, equally deserving of cultivation; it has ovate-lanceolate and more regularly toothed leaves than P. grandiflorus. These shrubs succeed in almost any soil and situation, but they appear to bloom most abundantly on a poor light soil. They are also exceedingly ornamental, particularly the early-flowering ones for a wall, sunny aspect, trellis, or arbour. Where only a small number is required, P. coronarius, P. Satsumi and P. grandiflorus may be selected. All the varieties bearing the names included under P. grandiflorus are good. The Mock Oranges are not very rapid coarse-growing shrubs, and may easily be kept within reasonable compass by the judicious use of the pruning knife. But care should be exercised in the use of it, whether for the purpose of giving them a comely shape or reducing their size. The main branches of a bush may be cut away to the base or shortened; and it should be remembered, when pruning wall or trellis plants, that it is the short lateral branchlets which bear the flowers.

W. B. H.

A SQUARE-STEMMED BAMBOO.

This new and remarkable variety, to which special attention was called at a meeting of the French Acclimatisation Society by M. Ed. Rénard, is destined to play an important part in other ways than those of ornamentation, if we judge from the description which is given of it in the "Revue Horticole." M. Rénard states that he met with it in his hunting excursions upon the splendid plains surrounding the large town of Osaca, in Japan. During his numerous journeys from Canton to Shanghai, and thence to Hau-Kéon, and even to Pekin, he had been unable to obtain a single specimen, although he was informed by the Chinese merchants that it existed in the distant provinces of Houan and Su-Tchuen. The variety is a veritable "square" Bamboo, and not, as was at one time stated, the result of the skilful pressure and manipulation of Oriental fingers. As a proof of this, M. Rénard placed at the disposal of the society a bundle of the canes which he had brought with him from Japan. The plant grows in close clumps to the height of from 30 to 35 feet; the bark differs from that of other species and is of a deep green colour, which becomes brighter in hue as it dries, but never becomes pure white. The joints are somewhat close to one another, and are furnished with small protuberances, as in the case of the Bamboo with pearly knots, so much valued in commerce. Its stems, without exception, are square or a square with the corners rounded off. It is very straight, tapering, and admirably adapted for the manufacture of fishing-rods; whilst its dense foliage, large and thick, affords a perfect shade from the sun. During winter the Japanese clear their plantations by cutting down the strongest stems; but this Bamboo is unusually difficult to keep within limits, and the only way to effect it is by means of deep trenches, which have the effect of keeping the roots within bounds. In Japan, the Square Bamboo has but few uses, and is cultivated only for ornamentation, or as a protection against the wind. M. Rénard, during his stay in Japan, made an attempt to bring home the stem and roots of the variety, which he packed in a cask sawn in halves. These he covered with vegetable soil and Moss, and sent them to Nagasaki, where they were shipped to Bordeaux. Subsequently, on arriving at Brest, M. Rénard, who travelled through America, found that the French War was at its height, and he was unfortunate enough to be amongst the beseiged in Paris. When he was able to do so, he went to Bordeaux, but found that his Bamboos had in the meantime been thrown into the Garonne, and all his trouble was rendered of no avail. Besides the variety in question, he had consigned other specimens to France, which met the same fate—notably, one of the enormous Bamboos, the shoots of which, when 1 foot high, are as thick as a man's thigh.

Improvements in Street Planting.—Mr. Ellwanger makes some excellent suggestions in the "Rochester Express," on the importance of well-planted streets in cities, which he thinks as essential to the beauty of a town as the architecture. We regard tree planting as much more important than fine building, at the same time that it is less understood. Mr. Ellwanger mentions Columbia as affording one of the best examples of judicious planting, either in Europe or America. The streets are about a hundred feet wide, with triple rows of Oaks, of fine growth. Where streets are narrow, trees of pyramidal, or upright growth, should be chosen, of which some of the cut-leaved weeping Birches are good examples. Wider streets may have Maples and Horse Chestnuts; while the widest of all may be planted with spreading Elms. He further suggests that some particular tree be planted exclusively in one street, and another sort in another street; which would give a characteristic expression to each street; and he justly objects to the common practice of trimming and mutilating trees year after year. If left nearly untouched, their full form will become developed, and for this reason the trees should not be crowded, but have abundance of room.

NOTES AND QUESTIONS ON TREES AND SHRUBS.

Danver's Yellow Oak.—This is one of the handsomest of lawn trees; its elegant drooping habit, beautiful golden tinge of foliage, and its unquestionable hardiness render it worthy of being planted everywhere for ornamental purposes. It is not so much known in this country as it ought to be; but as soon as planters get acquainted with it, it is sure to become a favourite.—A.

Seedling Conifers Best.—In reference to a statement in your article (see p. 508) on Cupressus Lawsoniana, I would ask if it is certain that seedlings make finer trees than cuttings.—Cotswold. [Cupressus Lawsoniana grows so readily from cuttings that it is very possible there may not be a great deal of difference between a seedling plant of it and one grown from a cutting, but all analogy points to the superiority of seedlings over cuttings. Look what a struggle it is to get a plant which has been raised from a lateral cutting of P. nobilis or amabilis to form a leader!—A. M.]

The Cork Tree (Quercus Suber).—Considering how ornamental this tree is, it is surprising that it is not oftener planted than it is as a single specimen on lawns, where its rugged bark is seen to better advantage than elsewhere. We have one here 9 feet in circumference at the base, an object of admiration to all who see it. Doubtless the sea-breezes, which we get in a mitigated form, are beneficial to its growth, as, like all the varieties of Evergreen Oak, it appears to flourish best by the sea. Like them, too, in cases of removal, great care must be paid to the roots.—J. Groom, *Henham.*

The Laugh-Lady Oak (Quercus pedunculata).—This grand old tree grows on the hill-side of the Laugh-Lady Dingle in Brampton Brian Park. At some far distant period its top has been broken off, and its bole driven asunder, very possibly by the violent tempest in September, 1645, at the time of Cromwell's death, which is known to have been very destructive in this park. It now presents a hollow stem divided into three sections, and each one has so far recovered itself as to send up numerous branches of a considerable size, and be everywhere luxuriant. At a height of 5 feet it is 30 feet in circumference.—J. A.

THE FRUIT GARDEN.

THE PEAR TREE SLUG.

Year after year this plague continues to spread, notwithstanding the many efforts that have been made to check its increase. In May, the mother fly emerges from the earth in which she had voluntarily buried herself. Her winged life, is at the utmost, of three weeks' duration. Her head, antennæ, body, and legs, are black; her wings, otherwise colourless, wear a blackish band or veil across their middle, and she is about the size of a grain of Wheat. By shaking the leafy twigs of a tree over a sheet of white paper or a white cloth, you will be sure to see some of these black, grain-like, and seemingly lifeless creatures fall on the cloth. I need scarcely say that this insect is a member of the great family of sawflies; nor need I describe the saw with which all of them seem to abrade the cuticle of the leaf, leaf-stalk, or twig on which they deposit their eggs. Suffice it to say that the abrasion made by the insect whose history I am relating is of curved or crescentic form, and the egg is laid in this abraded portion; the denuded parenchyma of the leaf thus comes into immediate contact with the under-side of the egg, which is of an oblong shape, and is covered with a leathery shell, capable of considerable expansion as the enclosed larva increases in size. Thus the egg is seen very obviously to grow, and this growth continues during thirteen days, at first slowly, towards the end of that period more rapidly. On the fourteenth day, according to Prof. Peck, the young grub emerges from the egg. I have no doubt this statement is correct as regards the United States, but I cannot say that I have verified it in England. On first emerging they are white or colourless, but in a very short time they become covered with a black, brown, or olive-coloured jelly, alike in scent and appearance. I cannot say that I thoroughly understand the mode in which this jelly or mucilage is produced; it accumulates on the surface of the skin until the creature becomes a dark mass without apparent life or even organisation. The grub glides with extreme slowness over the surface of the leaf, and apparently by means of claspers, a pair of which are attached to the under-side of every segment except the first, fourth, and thirteenth. These claspers seem to possess little of that tenacity which is so striking a character in the claspers of the caterpillars, of moths, and butterflies. Legs there appear to be none; but, like the onisciform larvæ of certain lepidoptera, the creature moves by the alternate dilatation and contraction of the ventral surface. The head is entirely withdrawn into the second segment, and concealed from view. The body is somewhat small at the anterior extremity, gradually but slightly attenuated at the posterior extremity. It seems destitute of any rambling disposition, its food, which is the upper cuticle and parenchyma of the leaf, being always within reach. It consumes these in a very methodical manner, leaving the lower cuticle entire; this very soon dies, withers, and turns brown, making the whole tree look as though covered with dead leaves. The hinder segments are generally raised slightly from the surface of the leaf, a very common character in this tribe of insect. This slug sometimes destroys the foliage of the Pear so entirely, that the tree appears to be dead; but there is still vitality within, and new leaves and new blossoms—those intended for another year—are put forth out of time and out of season. Thus the entire nature of the tree is changed, its functions disarranged, and its fertility, for two years at least, is destroyed. Notwithstanding its jelly-like covering, the slug changes its skins five times before arriving at its full size. At the last change it loses its jelly-like surface, and appears in a neat yellow skin without any viscidity. This great change occurs nearly a month after its first escape from the egg-shell; the head and segmental divisions are now quite as perceptible as in any other species of sawfly. Henceforward it eats no more, but crawls down the trunk of the tree and buries itself in the earth; at the depth of 3 or 4 inches each forms a neat little oval cell in which to undergo its final changes to a chrysalis and perfect fly. This cell is formed of earth, but is lined and intermixed with liquid gum-glue, which is obviously nothing more than silk in a liquid state—a preparation with which nearly every moth, butterfly, hymenopter, or coleoptor is provided more or less abundantly, and one which is always applied to the fabrication of a cocoon, cell, or covering of some kind in which to undergo its transformation. When this gum has once hardened and assumed its final state of silk or leather it is insoluble in water, and forms a perfect protection from wet. In this cocoon the grub remains for about a fortnight and then emerges as a fly to found another, an autumnal germination of slugs; these go through the same cycle of transformation as their progenitors; and, at the approach of winter, retire into the earth to pass that leafless season underground. I believe every leaf-eating insect has its parasite, its appointed enemy, whose office in creation is to keep the leaf-eater in check, and thus maintain the balance of Nature. Were it not thus, so vast would be the destruction of vegetation that man must himself perish in the fruitless struggle to maintain life. These faithful allies of man are of the same class as the flies produced from the slug. A word remains to be said about supposed remedies, and here I must confess that I am at fault. Sand, ashes, lime, and powdered hellebore have been tried with great energy, but the last only has been found trustworthy. The results of these experiments were recorded in the September number of the "Canadian Entomologist" for 1870. As soon as the slugs were observed at work in spring they were treated to a plentiful supply of dry sand thrown up into the higher branches with a shovel and over the lower ones through a sieve. The sand stuck thickly to the slimy skins of the grubs, completely covering them. Supposing the enemy conquered no notice was taken of him for some days, when he was found to have recovered from the assault and to be as vigorous as ever. It was then determined to test the sand experiment on a smaller scale. Several small branches of Pear trees were selected and marked, on each of which were six slugs, and these were well powdered over and completely covered with sand. On examining them, it was found that they had shed their sand-covered skin, and had crawled out as slimy as before. The sand was applied a second and a third time, with similar results. Seeing then that sand was useless, the slugs were treated to a strong dose of hellebore and water, which soon finished them. Ashes were next tried in the same manner as the sand had been, and were found equally ineffectual. Another experiment was tried with a solution of hellebore, and is thus reported:—"On the 13th of August, at 8 a.m., a branch of a Cherry tree was plucked on which there were sixty-four slugs. This branch had only nine leaves, so it may be supposed they were thickly inhabited. A dose of hellebore and water about the usual strength, an ounce to the pailful, was showered on them, when they soon manifested symptoms of uneasiness, twisting and jerking about in a curious manner; many died during the day, and only six poor sickly-looking specimens remained alive the following morning, and these soon after died. During the past season these slugs have been unusually abundant on our Pear trees, in many cases destroying the foliage so thoroughly that they looked as if they had been scorched by a fire, every leaf in some instances dropping from the trees, so that for a time they were as bare as in mid-winter. Nearly a thousand trees in the young Pear orchard of the writer suffered severely. During the latter part of June and the early days of July we had no opportunity of inspecting these trees, and when we visited them on the 7th July they were so much injured that we thought they could not be much worse; and, as the slugs were then full-grown and fast disappearing, and as the application of a remedy to so many trees was a matter of so much labour, nothing was attempted to remedy the evil then." Then follows a list of the Pear trees injured, and from this it appears that some varieties suffered more severely than others. In the course of a fortnight after these observations were made, new leaves began to push out vigorously on the defoliated trees, and within a month or six weeks all was green again. "In the meantime," says Mr. Bethune, "the mischief-makers were preparing for a second descent, and we in our turn were preparing to receive them. On the 20th of July, when going through the orchard in the afternoon, the new brood of flies were found in the greatest abundance, resting on the young leaves and on those portions of green which still remained on the leaves partially eaten by the last brood. They were congregated, however, most thickly on those trees where green leaves were most abundant. On disturbing them they would fall to the ground with the antennæ bent under the body, and the head bent downwards. We caught about sixty specimens, and might have taken hundreds. They were so thickly spread, that in many instances there were two or three on a single leaf. By the last week in August the second brood of slugs were hatched. Now those trees which had previously escaped were all more or less infested. An elevated platform was rigged up in a one-horse cart, in which was placed a barrel of water in which a pound of powdered hellebore had been mixed, and from this elevated stand this mixture was showered lightly on the trees from the rose of a watering-pot. It was astonishing how quickly the trees were cleared by this method; scarcely a slug could be found on a tree that morning after the application had been made, and 10lb. of hellebore, with five or six days' work of a man and horse, served to go over the whole ground." Powdered hellebore has been successfully tried in England on a small scale.—"Field." [Mr. Riley tells us that the slug worm of our gardens is the same which troubles the American fruit growers.]

Orange-coloured Blight on Pear Leaves.—I enclose half a dozen Pear leaves for your inspection, which, as you will observe are speckled all over with an orange-coloured Fungus-looking "blight." I should be much obliged to you if you could give me some account of this pest, and mention a remedy for it. I fear that I shall be obliged to grub the trees out and burn them, as I should be sorry to see it spread further. At present the trees infested are somewhat isolated, being in a detached garden. I first observed the spots two years ago. The number then visible was so small that I had all the affected leaves cut off and burnt, but this season every leaf is covered with them.—George Berry. [This is Rœstelia cancellata. The best treatment is that which has been already adopted, viz., picking off the leaves and burning them.—A. M.]

Shifting Strawberries to Cool Temperatures.—British Queen and Sir Charles Napier are now, with us, hanging from suspended shelves like ropes of Onions—a most beautiful sight. I approve of transferring Strawberries in pots when well set from a cool to a higher temperature; but, if the fruit is large and fine, it is rather a difficult matter to transfer them from a warm to a cool temperature, without bruising the ripe fruit, although I have done it on certain occasions by putting them into frames under a north wall. I am doubtful, however, whether such shifts improve their flavour or not. Small sorts, grown in high temperatures, in February and March, and fed with rich manure-water, would, under ordinary circumstances, require a resting place somewhere between the hothouse and the dessert-table, in order to bring the fruit into a palatable state; but, during such weather as we have had of late, I consider transferring the fruit to north houses, in order to give flavour, is not required, as, during the day-time, most of our houses are quite a third part open for ventilation, and, with a free current of air passing through them, the flavour cannot be bad. In the case of Strawberry plants turned out of doors, after the fruits are pulled, their leaves will be found to be as clean and fresh as those flowering in the open air, without a trace of red spider to be seen. This is the result of free ventilation with plenty of water at their roots, and not over much syringing.—J. Miller, *Clumber.*

The Thurber Peach.—This is highly spoken of in America, where it was raised. It is a freestone seedling of the Chinese Cling, that prince of Clingstones; and, instead of having the straggling habit of growth of its parent, the original tree is of a most perfect pyramidal shape. The fruit is large, even very large, round or slightly oblong; skin, creamy-white, beautifully mottled or marbled with carmine or faint pink cheek; flesh, white, extremely juicy, dissolving, sweet, and highly perfumed; quality, exquisite. So it is described by Mr. Berckmans, and we hope our own growers will soon test its merits. It is named after Dr. George Thurber.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Strawberry La Grosse Sucree.—This is a new and at present little known variety. It is good as regards both quality and size, an abundant cropper, ripens ten days earlier than Keen's Seedling, and promises to be a valuable kind for early market purposes, or for forcing.—W. Cox, ***Madresfield.***

Rivers's Early Orleans Plum.—If Mr. Rivers had raised nothing else except this Plum, it is enough and to spare to hand down his name to posterity as a benefactor to horticulturists; for, when all others happen to be fruitless, this delicious variety is sure to produce a crop. No garden, however small, should, therefore, be without a tree or two of it.—R. Gilbert, *Burghley.*

Royal Hautbois Strawberry.—I have sent you a plant or two of this Strawberry, a seedling from the Hautbois, raised some years ago by my father. It is remarkable, not only for size and fertility, but also for flavour.—T. Francis Rivers, *Sawbridgeworth.* [Its size and fertility are all that can be desired; but its flavour, which is peculiar, is not first rate. Most kinds of Strawberries are, however, deficient in flavour this season.]

Growing Strawberries under Difficulties.—Mr. Taylor, gardener to Mr. Cavendish Bentinck, M.P., Branksea Island, has this season been very successful in growing Strawberries. Having little else but peat on the island, he made up a composition consisting of two parts peat, one rotten dung, and one of burnt clay, or what he describes as clay dust, the refuse from a pottery. Both for forcing and growing them naturally, this mixture seems to suit them well.—R. Gilbert, *Burghley.*

Grafting Pears on Cotoneaster.—We ("Illustration Horticole") have recently again seen a notice of the experiments of Dr. Bretonneau, the celebrated physician of Tours and a lover of gardening, on the grafting of distinct genera. He has successfully tried grafting Pears on Cotoneaster affinis and on Amelanchier. The results were very curious and interesting, and were crowned with success; but similar experiments on the evergreen species, C. buxifolia and C. microphylla failed.

Water Evaporated by Fruit Trees.—Advice is given by a German Professor to keep in orchards a certain space around the trees free of Grass and weeds, as these draw too much water away from the trees; indeed, it has been proved that trees, which were sickly and bore little fruit, have been restored to vigorous growth by returning to them the necessary water in this way. To prove how much water fruit trees need, it may be stated here that an acre planted with them will evaporate in about twelve days 5,000,000 pounds of water.

Budding Apple Trees: G. S. W.—This should be done towards the end of July, and in the same manner as in the case of Rose trees, only the buds of the Apple are generally put on the main stem of the stock. Apples budded thus are raised in vast quantities in all Continental hardy fruit nurseries.

Summer Pruning Fruit Trees: H. A.—The superabundant shoots on wall fruit trees and others should be removed by the end of June, and all the shoots that have gone beyond the spur stage shortened. It is a mistake to shorten too much. We should always leave half a dozen large healthy leaves at the base of the current years' shoot.

THE KITCHEN GARDEN.

THE NEW POTATO DISEASE.

Several of your correspondents appear to think that this peculiar disease is chiefly confined to the Rose family of the American Potatoes, whilst some state that it is affecting the American varieties generally—in fact, Mr. Dean states positively that "it is important to remember that this so-called new disease is chiefly confined to the Rose family," whilst "J. T." shows six other kinds, thus making the disease general. Now, in forwarding you the two samples of haulm last week, I did so without giving the name of the Potatoes from which they were taken, and I fear that gardeners generally will be sorry to learn that others than the American kinds are affected with the disease, as one of the samples (No. 1) was taken from Sutton's Hundredfold Fluke; and, although I have since dug up some half-dozen roots, I did not find a single Potato more than three-quarters of an inch in diameter, and the disease seems to be spreading more and more in this kind every day. The other sample (No. 2) I took from the Early Rose. One point I have noticed in connection with the planting of the sets, viz., that the rotting affects both the whole ones and those cut, hence there can be no difference on that score.

Bath Road, Exeter. John H. Howard.

I have two plots of Early Rose Potatoes growing here side by side. No. 1 was planted with seed grown here, whilst No. 2 was planted on the same day with seed grown in the Fens for one season only, having been grown here the previous year. About half the Potatoes in No. 1 plot are now affected with the new disease; many of the tops appear as if scorched, but there is an entire absence of any bad smell, such as is perceptible when the disease that has hitherto prevailed attacks the Potato. The plot No. 2, planted with Fen-grown seed, with the exception of two or three roots, is in vigorous growth, affording astonishing contrast to the adjoining crop, and suggesting pretty conclusively the advantage of frequently changing the seed. Whatever may be the cause of this visitation, I think the premature ripening of the crops by the drought of last year seriously impaired the vital energies of the plants, and rendered them more susceptible of the attacks of ailments, that plants in vigorous health would have escaped. I should look upon a change of seed, with more care in its selection and winter management, as one of the best means to guard against the reappearance of disease. E. Hobday.

On the 22nd of March last I planted some Potatoes procured from Messrs. Sutton, which they call their new Hundred-fold Fluke. Of these the haulm from the first appeared shrivelled or curled up, and it has continued ever since in the same condition, not getting much worse or much better. Potatoes, planted in the same bed, and on either side of them, came up strong and healthy looking. Some of the same sets were planted by a friend in a field about half a mile from those in the garden, and these are much worse than mine; in fact, they have very little haulm left, and seem as if eaten up by an insect. Should the Rev. M. J. Berkeley, or any other authority, think I can give them further information calculated to assist them in their investigations regarding this disease, I will be happy to do so, or forward some of the haulm and tubers for inspection, should they express a desire to see them.

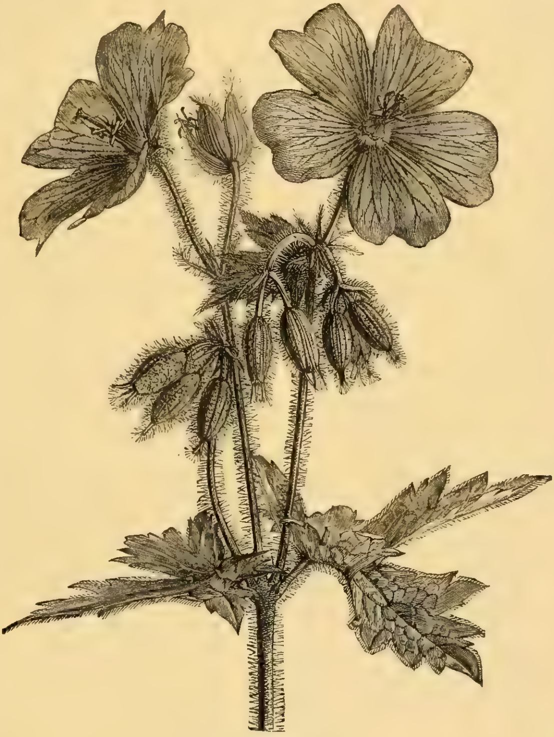
Askive Cottage, Kenmare, County Kerry. M. W.

The Biscuit Potato.—Report speaks highly of this variety, which was obtained by M. Louis-Pierre Tétart, a cultivator at Groslay, in France, from seed of the Marjolin, a well-known French Potato. For some years it was grown by M. Tétart for his own use, and it was only in 1866 or 1867 that it was placed in the market. At present it is very generally cultivated in the Seine-et-Oise, and last year met with a favourable reception in Paris, especially in hotels and restaurants, from its excellent qualities and its size, which are not common amongst early varieties. These qualities, which were thoroughly recognised by M. Tétart, induced him to name it the Biscuit. It is extremely farinaceous, of a peculiarly fine flavour, and is only ten days behind the Marjolin, to which, during the earlier stages of growth, it bears much resemblance; later on, however, the plant becomes larger, and the leaves more angular and of a lighter green. The tubers, which are very large, are of considerable length, somewhat flattened in shape, and are gently rounded off at the extremities; the flesh is yellow. It is said to be a heavy cropper; but care must be taken to earth up the plants, or the tubers are liable, from their size and numbers, to approach too near the surface, when they throw out shoots that injure their qualities.

THE FLOWER GARDEN.

GERANIUM PLATYPETALUM.

Many Geraniums, at present confined almost exclusively to Botanic Gardens, might be advantageously grown as ornamental plants in ordinary garden establishments, and amongst these, one of the most effective is that of which the accompanying is an illustration. It is a beautiful Caucasian variety, named G. platypetalum by Fischer and Meyer. It grows wild in the Talish Mountains, and is closely related to G. sylvaticum, from which, however, it only requires a superficial examination to distinguish it. It is of a stronger growth than that kind, and its flowers, which in colour resemble those of G. pratense, attain, as will be seen by the engraving, which represents them in their natural size, much larger dimensions. This charming Geranium is more especially valuable, both in large and small gardens, inasmuch as it is easily increased, both by division of the stem and by means of seed. In addition to this it is extremely hardy, and thrives in almost every kind of soil. It is, as will be seen, covered with soft, spreading hairs. The stem is erect and angular; the stipules broad; the leaves heart-shaped, denticulated, and having from five to seven oboval-obtuse lobes; the peduncles, which carry from two to three flowers, are covered with glandulous hairs, as also is the calyx, which has awn-like sepals. The petals, which attain double the length of the sepals, are two or three-lobed; the stamens and carpels slightly hairy, and the seeds glossy. The flowers, which are pendent previous to opening, remain erect during the time they are in bloom, a period lasting from May until July. Among all kinds of Geraniums, G. platypetalum is one of the best for growing in clumps, in which it produces, when in full bloom, a striking effect, its flowers being large and produced in great abundance. It is a remarkably fine variety, which should always be cultivated where it is possible.



Geranium platypetalum.

HARDY PLANTS AT THE WELLINGTON NURSERY.

At present, notwithstanding the late heavy showers, the appearance of this nursery is particularly brilliant, the fine collections of Lilies, Gladioluses, Irises, Alliums, Violas, and other well-known genera being now in flower. Among the early summer-blooming Irids there are some very effective groups of the Spanish (or bulbous) and English sections, the great flowers of the latter being especially rich in colour. Great patches of Iris Kæmpferi have made a most vigorous growth, and their numerous buds give promise of a charming display of colour in another week or two. The fact of these plants growing so well planted outside, in the open and unprotected beds at St. John's Wood, is a very interesting one, as they have hitherto been considered rather delicate in constitution, and somewhat difficult to manage. I feel sure Mr. Elwes will be glad to hear so good an account of these beautiful varieties, which are probably seedling or natural sports from the rich purple Japanese Iris lævigata. One great purple-flowered form, having the base of each velvety segment marked with gold (E. G. Henderson), was exhibited last year at South Kensington, and was unanimously awarded a first-class certificate. This fine variety has flat Clematis-like flowers, composed of six large oblong segments; but there are other varieties equally fine, which we hope shortly to see in bloom. Several long rows of Delphiniums are very effective, and among these the following varieties are excellent in every way:—D. Coronet, a dense-habited plant, little over 2 feet in height, the spikes of dark blue semi-double flowers being very closely arranged. D. Bella Donna is well known as one of the finest of all the light or porcelain-blue varieties, and D. Hendersoni is a robust variety, bearing a very stout elongated pyramidal spike of deep blue flowers, and is admirably adapted either for a border or for the supply of cut flowers for large vases. There are scarcely any other hardy herbaceous plants that can equal these in depth and richness of colouring, each plant being, in many cases, a dense mass of the purest and richest blue, and the cut spikes, when grouped with Orange Lilies, white-flowered Anthericum, Clove Pinks, and rich yellow-purple-stained Irids, recall at once, to one's mind, the pictures of Van Os the elder, Van Huysum, and the other Dutch flower painters, in whose richly-tinted paintings the Delphinium is constantly to be met with. Some beds of rosy and white Pyrethrums, or summer Chrysanthemums, as they are not inaptly called, are at their best, and contrast well with the deep and perfect blues of the Perennial Larkspurs. A large bed of Æthionema grandiflorum is a dense mass of soft rose and white flowers, each specimen being fully 2 feet in diameter, and laden with slender flower-spikes. This useful plant is of a semi-shrubby character, with glaucous, linear, Linum-like foliage, the tip of each little branchlet bearing an oblong head of flowers, 2 to 3 inches in length; the buds and flowers are of a bright rosy hue when they first expand, and gradually fade to nearly white or faint lilac as they become old. Saxifraga nepalensis (S. pyramidalis and S. Cotyledon), a fine plant, belonging to the Megaceous group of Don, is blooming freely, the panicles of white rosy-dotted flowers varying from a foot to fully 3 feet in height; as a plant for rock-work this is much to be recommended. Another beautiful old rock-work plant, Tropæolum polyphyllum, is, at the present time, a dense mat-like mass of glaucous leaves, the ends of the thick succulent growths being thickly studded with bright orange-yellow flowers. A patch of Allium ciliatum is studded with dense globular heads of white flowers, as is also the older and better known golden-flowered A. Moly. One of the most curious species in this genus is, however, Allium glaucum, a dwarf-growing plant, having flattened, bluish-tinted leaves, curiously twisted like a corkscrew. This plant is so neat and distinct that it should find a place amongst hardy flowering bulbs, although it is far from showy from a decorative point of view. Some tufts of a rather rare Spiræa, named S. Humboldtii, are now blooming freely. The plant is of robust habit, and bears some resemblance to S. Aruncus, but the leaves are more finely cut, and the flowers of a more decided yellow colour. As a decorative plant, it well deserves a place in the herbaceous border, or as an isolated specimen on the lawn. S. Aruncus is one of the noblest of all plants for a position near the fringes of the shrubbery or by the spongy margins of ornamental water. Great clumps and masses of the noblest of all well-known Lilies and some of the rarer American species and varieties are looking well, and promise a fine display of bloom. Even at the present time some beds of the different forms of L. Thunbergianum are glowing with brilliant orange, orange-yellow, and crimson-streaked flowers. Some varieties bear a great solitary saucer-like flower an inch or so above the soil, while others carry great clusters on stout stems fully a yard in height. Some forms of the lilac-purple L. Washingtonianum purpureum are now in flower, and the tall-growing L. Humboldtii has, in many of the clumps and beds, made splendid growth, some of the buds being now on the point of bursting. This promises to be a free-growing, free-blooming, and very attractive plant in every way. The small-flowered, slender-growing Lilium canadense (var. parvum) is also blooming freely, its bright, bell-shaped, golden-yellow flowers being little over an inch in diameter, and the base of the cup being dotted with reddish-brown inside. It is a pretty little Lily well worth attention. B.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Lilium giganteum.—This is now in flower in the open ground in Mr. Latimer Clark's garden at Hitherwood, Sydenham Hill, where it appears to be perfectly hardy. Anyone desirous of seeing this particular species in bloom can do so on presenting a card—E.

Hardiness of Cypripedium spectabile.—A large potful of this Orchid stood out-of-doors during the last winter without injury; the roots were divided in spring and kept growing without protection. Most of the plants raised from such divisions are in bloom. What makes the hardiness of this fine Cypripedium more certain is the fact that the pot containing it was smashed.—R. P. B. [It is a hardy bog plant in many of the northern parts of America.]

Pansy Propagation.—I would recommend cuttings to be put in immediately. They strike freely under a bell-glass in a cool shaded situation, and, if planted out as soon as rooted they will make fine plants by the autumn. Those known as the Cliveden varieties of yellow, blue, and white, are, according to my experience, the best for early flowering; in fact, during mild winters they will go on blooming continuously. Seedlings cannot be depended on where self colours are desired, but they form excellent mixed beds.—J. GROOM, *Henham Hall.*

—— In order to secure a good stock of any kind of Pansy, it is better to trust to plants raised from cuttings than from seed, as seedlings, although true to colour, have such diversity of shades, markings, and habits of growth, that they cannot be trusted to produce a constant and even mass of colour. Cuttings made of the young growth that comes up from the base of the plants in summer are best, inasmuch as they are firm, and generally strike freely. Old blooming wood is usually hollow, and consequently strikes badly. Cuttings may be put in a cool shady place, in sharp sandy soil, any time during the next three months. For spring beds, none are better than Blue King, Bedfont, Yellow, and Snowflake; and of early blooming Violas, none are better than Bluebell, Yellow Boy, and White Swan.—A. D.

Speedy Mode of Propagating tree Carnations.—In Messrs. Low's nursery, at Clapton, where thousands of these plants are annually struck from pipings, it is an established rule never to prepare the cuttings or pipings, as they are termed, with a knife. The plan adopted, according to Mr. Casey, is to take hold of the top of the "grass" and draw it gently until it breaks, which it will do at one of the joints; cuttings thus treated are found to root much better than those made with a knife, which, unless very sharp and skilfully used, bruises the tissues and predisposes the cuttings to damp off. This mode of preparing cuttings is worth a trial, not only in the case of Carnations, but also in that of other plants which have distinctly articulated or jointed habit of growth.—B.

Lilium colchicum.—Too much cannot be said in praise of this charmingly graceful and sweet-scented Lily. It is perfectly hardy, a free grower, and profuse bloomer, coming into bloom in the north of England early in June. Last year my only bulb of it produced three blooms, and this summer it has developed eight, on a strong stem 4 feet in height; the petals—six in number, and of great substance—curve backwards. The flowers are of a rich lemon or straw-yellow, three alternate petals being perfectly clear, and the remaining three marked with minute brown or dark spots. It seems to thrive well in ordinary garden soil. Will any of your readers who have flowered this Lily kindly state what is the greatest number of blossoms which they have grown or seen on one stem of it?—G. F., *Northumberland.*

DIPLADENIAS.

By T. BAINES.

THERE are few plants requiring artificial heat more deserving of general cultivation by all who possess a warm stove than Dipladenias. They are of moderate growth, remarkably free and continuous in their blooming, and, when well managed, flower profusely from the end of April up to December, if required. Although it is not desirable to allow them to keep on so long, having in view the preparation of the plants for the ensuing year, yet, if the flowers are wanted so late in the autumn, all that is necessary is to defer cutting the plants back, and to keep up a sufficient heat to induce the formation and expansion of the blooms. For bouquets, either half or fully expanded, the lovely rose-coloured D. crassinoda, or the beautiful blush-tinted D. Williamsii, with its deep rosy throat, have few equals; for vases or March stands these, and also the darker varieties, are amongst the best flowers that can be used, furnishing, as they do for a long period, a daily supply of blooms of the most refined and distinct character. But, in gathering them to be thus used for decorative purposes, care should be taken to cut only the individual blooms with their foot-stalk, as, if the whole bunch is removed it is extravagant, for each will, if allowed to remain on the plant, keep on flowering for two months. The best, most distinct, and desirable kinds have been raised from D. crassinoda crossed with D. splendens. D. Brearleyana, figured to-day in our coloured plate, and sent out by Mr. W. Bull, is the finest garden hybrid stove plant that has ever been raised. These are all much darker in colour than either of the parents. In the cultivation of Dipladenias one point should not be lost sight of, which is the necessity of a strong heat to grow them well. D. crassinoda comes from the hot low-lying districts of Rio de Janeiro; D. splendens, from the foot of the Organ Mountains; consequently neither the species nor the varieties raised from them can be expected to succeed without plenty of heat. They should be kept through the winter as near 70° during the night as possible. A good deal has been said and written about resting plants during the winter to prevent their becoming exhausted or worn out. Plants that are indigenous to hot countries, with few exceptions, get only short rests, and most of them are never completely dormant. I have kept Dipladenias for ten or twelve years, and they were as strong and vigorous at that age as they ever had been. They never, during the whole of that period, had any rest, except what they obtained in making slower growth in the winter season. They used to begin opening their flowers by the middle of April, their shoots measuring 20 feet in length. By the middle of May they were generally in full bloom. In speaking thus of non-resting stove plants, I am aware it will be looked upon as unpardonable heresy by the old school of gardeners, but I am merely stating facts that have been proved by actual experience. In this matter, there is a very considerable difference between stove and greenhouse plants. Autumn-struck cuttings that have been kept on growing through the winter, or such as have been rooted this spring, and which may be supposed to be now in 5 or 6-inch pots, should be at once moved into others 3 inches larger, using, in all stages of their growth, nothing but good fibrous peat and sand. This is more suitable for them than any mixture of peat, loam, leaf mould, or other combination. The peat cannot be too fibrous, and after the plants are moved from 6 inch pots it should be used in a lumpy state, the pieces not being broken smaller than bantam's eggs. Good peat of this description should have mixed with it one-sixth part of sand. Drain the pots well, pot moderately firm, and do not give water until the soil has become drier than would be advisable for most stove plants. Take half a dozen sticks, 3 feet in length, and insert them in the soil just inside the pot, round these wind the shoots, leaving the points well up, or they will throw out too many side breaks; and keep them through the remainder of the summer in a warm stove, for they will bear as much heat as any plants living. Syringe them overhead every afternoon, getting the water well to the under-side of the foliage, as they are subject to red spider, as well as to scale and mealy bug. By the middle of October move them into 12 or 13-inch flowering pots. In potting this time, do not disturb the roots any more than is necessary to remove the drainage soil, which should be similar to that used for the previous shift. Untwist the plants from the sticks to which they have been attached, and at once put them on the trellises on which they are to be grown; these should be made of strong galvanised wire, 2 feet 3 inches broad, by 2 feet 6 inches in height above the pot. These trellises may appear small, but they look very bad when not well covered with foliage, and the bunches of flowers, which should never be tied in stiffly, will project on all sides to a distance of 6 or 8 inches from the trellis, making the plants large enough for any purpose. The ends of the wire should be 9 inches longer, so as to have sufficient hold of the soil, and should be inserted just inside the rim of the pot, and fastened securely by three stout sticks, 1 and 1½ inches in diameter; these should come half-way up the inside of the trellis, and be secured to it, so as to keep the whole firm in its place. Without these sticks the trellises are liable to swing about and injure the plants when moved. Train the shoots evenly round the trellis, taking care to furnish the bottom first; growth from this time until the days lengthen will be much slower. Through November, December, and January, keep the night temperature about 70°, with a rise of 5° in the day. A good bed of tan is of great advantage to the plants, which should stand above it, but Dipladenias should never be plunged. They are very impatient of any excess of moisture at the roots, and, when plunged, it is not nearly so easy to tell when they require water; it also makes them much more tender by the way in which it acts upon them, &c.; when plunged in most houses they are too far from the light. Run the shoots up thin strings fastened from the trellis to the roof, keeping them in this position until they have begun to open their flowers. At the beginning of February the temperature should be raised 3° or 4°; and, by the end of March, it should average 78° in the night, letting it run up to 85° or 90° in the day with sun-heat; admit a little air but allow no cold currents to come in contact with the plants. Close early, syringing at the same time. As the sun gets powerful the flowers will be benefited by a little shade in the middle of the day, but the plants do not require it. When the bunches begin to open, train the shoots neatly round the trellis so as to have it covered uniformly with foliage and flowers. Assist them with manure-water all through the season from this time, and they will keep throwing out fresh shoots that will show bloom when from 12 to 18 inches in length. Do not allow these to get twisted. They will, if all goes on well, continue to bloom freely through the summer. At the end of September they should be taken off the trellises, and the shoots cut back to within 6 feet of the collar. If there are any scale or mealy bug upon them immerse the shoots for an hour in "Abyssinian mixture"—5 ounces to the gallon—and then tie them loosely to a few sticks inserted in the soil. The temperature now should be about 70° in the night; in three weeks they will have broken sufficiently for moving; then turn them out of the pots and reduce the ball quite one half, removing as much of the old soil as is possible without injuring the roots. Place them in 15-inch pots, which size is large enough for any Dipladenia, as, owing to the annual renewal of so much of the soil, they do not require more room than this. In potting always keep the collar of the plants well up, only just, or barely, covering the tuberous portion of the roots, by which means they are not nearly so liable to suffer in this their most tender part. At once place them on the trellis again, and treat them in every way as recommended for the preceding year.

The following varieties are the best, and deserve a place in every stove:

D. Brearleyana.—The finest of all. Has immense flowers, with from three to four open on each bunch at a time. The colour is not easy to describe. It is, when properly brought out, extremely rich, differing from any other flower I ever saw —an intense deep reddish-crimson, with a lustre upon it like the Damask Rose. It has fine dark green leaves, is a remarkably robust grower, and equally free flowerer.

D. insignis.—A fine variety, with deep rosy-purple flowers of great substance. The leaves are large, and set off the plant to advantage.

D. amabilis.—An excellent free-flowering sort, the blooms distinct in colour from both the above, being deep rose, with ample foliage. One of the best plants in cultivation.

D. crassinoda.—A more slender-habited plant than the preceding, with thinner wood and smaller glossy leaves. Its beautiful rose-coloured flowers, which the plant produces freely, are well set off by the yellow throat. I have had a plant of this variety with 150 bunches of flowers upon it at once.

D. Williamsii.—This is an improvement upon D. splendens, the ground colour, like that variety, being pale blush, with the addition of a deep pink throat, that much enhances its beauty. It blooms freely, and is one of the most chaste flowers that we have.

D. Boliviensis bears delicate-coloured flowers, much smaller than any of the preceding, and is very distinct from them. There are several other varieties, none of which, however, are equal to those named. All make beautiful climbers for draping the roof of a stove, the splendid colour of their flowers being seen to the greatest advantage thus hanging; but, even when grown in this way, they should not be planted out, as they succeed best in pots where the soil can, in a great measure, be removed every year. In growing Dipladenias it is necessary to keep the soil drier than is required for most stove plants, and also to keep them clean from scale, thrips, bugs, and red spider. Any of these pests will live upon them; and, if allowed to increase to any considerable extent, disfigure the foliage.

THE GARDEN IN THE HOUSE.

PLANTS IN DWELLING-HOUSES.*

By E. S. Rand, Jun.

A plant lives and breathes, and a want of provision for this breathing is, we hold, one great cause of ill success in indoor culture. A plant breathes through myriads of pores existing more or less numerously in the foliage, according to the species. If these pores become in any degree clogged by the fine dust of the room, just so much is the health of the plant affected by the stoppage of one of the vital functions. The dry air of living rooms, often contaminated by furnace gas or unconsumed illuminating gas, is another source of ill health. Plants must breathe a moist pure atmosphere, and an atmosphere charged with coal gases is sure to produce disease. The food of a plant is derived partly (sometimes wholly) from the air, in the form of moisture, and partly from the earth in the form of soluble salts; this food it elaborates by its own peculiar organism and appropriates to its growth, and, just in the proportion that this food is furnished in suitable form and quantity for such adaptation, will be the healthy growth of the plant. Plants, too, have their seasons for feeding, and the supply of nutriment must not only be sufficient in quality and quantity, but furnished at the proper time. Light, generally direct sunlight, is important to the health of plants; comparatively few thrive in shade, and with most the more light the stronger and more vigorous the growth. Plants grow to the light, and, withdrawn from it, they strive to reach it, and become what the gardeners call "drawn," that is, produce long, weak growth, with leaves at long intervals, instead of the short, stocky growth, which is in most plants a sign of health. We thus have the essentials of health in the requisites of air, cleanliness, and light. These properly provided, with judicious watering and suitable soil, success is certain. Let us, however, consider these essentials somewhat in detail.

Air.—We have said a vitiated atmosphere is unsuitable for the healthy growth of plants, and such is the air of most parlours and living rooms. Its life is dried out of it by its passing over the red hot iron of our furnaces and stoves. We can all remember instances where plants do well in rooms heated by open wood fires, the most healthy mode of heating a room, both for plants and human beings. Steam heat is better than that of furnaces or stoves, as the air is less contaminated, and can be kept moister. But it is not alone the dryness of the air that is injurious. From all furnaces or stoves more or less gases escape and contaminate the air, and where gas is used for illumination a large percentage escapes unconsumed into the air of the room. Now, how can we remedy this? If possible, by growing our plants in rooms which are not lighted by gas or heated by furnaces or stoves. Where this is impossible, by securing, by ventilation, a complete change of the air of the room at least twice a day. Plants seldom require a very high temperature, and most of our living rooms are too hot for them; a night temperature of 40°, rising to 65° or 70° by day, is quite sufficient for the healthy growth of most plants, and this rise of temperature should be mostly from sun heat. Sudden changes of temperature and cold draughts should be avoided; to some plants a chill is almost as injurious as frost. During the present winter we have grown Palms (Latania), Agaves, Cypripedium insigne, Tillandsias, four species of Ferns, Chinese Primroses, and Pelargoniums, in a large hall, where every cold night the mercury was as low as 42°, and more healthy plants one could not wish. A good plan is to separate a bow window from the room by a glass partition, making, in fact, a small conservatory, and thus pure air, moisture, and light, can be secured. Evaporation of water on stoves or furnaces is of great benefit, and should be universally adopted; in fact, the moister we keep the air of the room, consistently with the health and comfort of the inmates, the better it will be for the plants; but let us remember that in a low temperature the moisture may be less than where the room is kept very warm.

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* Read before the Massachusetts Horticultural Society.

Cleanliness is of the first importance. A dirty plant will not thrive. The fine dust always floating in the air of living rooms settles upon the plants. This is easily removed by sponging with lukewarm water, or by removing the plant to a sink and copiously showering it from the fine rose of a water-pot. The stem also of hard-wooded plants should be occasionally sponged. The frequency of showering or washing must be regulated by the necessities of the case or the nature of the plant. Some plants are impatient of water upon the foliage. In many cases dust may be removed by gentle brushing with a soft feather duster. Under this head we may properly speak of the insects infesting house plants. These are few, and very little attention will keep plants clean. Green fly, or aphis, which is the most common pest, is best destroyed by smoking. Place the infested plant under a barrel, put a few live coals in a dish, moisten some common plug tobacco that it may not blaze, throw it upon the coals, and let the plant remain in the fumes from five to ten minutes; then give the plant a good syringing or sprinkling, and the work is done. Thrips seldom attacks house plants; should they be found, smoking will remove them. Red spider is kept down by moisture—frequent washing and sprinkling will destroy it. Mealy bug is one of the worst pests of the greenhouse, but is rare on house plants. Washing will remove it, but the best plan is to touch the places where it is seen with a camel's-hair pencil dipped in diluted alcohol. Scale of several kinds is often found on the stems and leaves of home-grown plants; washing with strong soap-suds and persistent application will remove it. A paragraph has been going the round of the papers recommending kerosene oil for scale on Ivy; that it will destroy scale there is no doubt, but it will also kill the foliage. It might, however be used cautiously if diluted with water, with which it will mix if a little soap is added. A healthy plant is much less likely to be infested with insects, and if plants are kept in stout, vigorous growth, there will be little trouble from any insect pest. A warm dry atmosphere is much more conducive to their development than a low moist temperature. Generally, however, house plants have no insects which a very little care, when they first appear, will not remove.

Light is very important to plants, and for most plants direct sunlight is necessary. A southerly window is the best exposure, but a deep bow window fronting the south, where the morning sun can come in on the east, and the light of the setting sun on the west, is the best for the growth of plants. If the choice is between an easterly or a westerly window, the easterly should be chosen, as the morning sun is better than that of the afternoon. The plants should be as close to the light as possible, as thereby there is less danger of their becoming drawn; they should be frequently turned, that all sides may have equal exposure; this is especially necessary with quick-growing, soft-wooded plants. Some of the revolving flower-stands are in this respect very useful, as they enable the plants to be turned to the light without the labour of lifting the pots. Light has also great influence upon the colours of the flowers, which, if grown away from the sun, are usually pale and weak.

Water.—We have said that plants derive most of their food from the soluble salts of the soil which are taken up by the roots in a liquid form and assimilated to the uses of the plant. Sufficient and careful watering is most essential to successful culture, and it is from neglect in this particular that so many failures arise. The quantity of water needed varies with the nature of the plant; a very little suffices for some, others require a large supply. There are, however, very few plants that will flourish with water standing around the roots. Therefore, in potting, provision should be made, by ample drainage, for the escape of all superfluous water, and where saucers are used all water which drains off should be emptied. Watering may be more or less frequent according to the nature of the plant, but should always be thorough; not little driblets, given now and then, moistening the surface-soil, and leaving the centre of the ball dust dry, but a good soaking, thoroughly wetting all the soil until the water runs off; then do not water again until the plant is dry. The temperature of the water should never be below that of the air of the room; it may be higher, and the water may even be lukewarm; but the many paragraphs found in newspapers advising the use of hot water are no less pernicious than absurd. The best mode of enriching the soil is by water; guano, the salts of ammonia, and other manures may be applied in a soluble form; caution is necessary, however, lest the manure be too strong, thereby injuring the plant; and usually, if the soil is good, no manure will be required. If a plant exhausts the soil, the best remedy is re-potting.

Soil.—The soil in which the plant is grown is an important element of culture. For most house plants a rich light soil is suitable, such as may be easily made by a slight mixture of fine fresh sand with good garden loam. In this, if good drainage is secured, most plants will do well. Where, however, it can be obtained, a mixture of two parts of well-rotted turf and one part sharp sand is preferable. If there is a neighbouring greenhouse it is easy to obtain such soil, but any sweet earth which is not sodden, or is, by becoming so, allowed to get sour, will grow common plants well. It is a good plan to stir the surface of the soil in the pots whenever it becomes hard; this is especially beneficial to Roses. The addition of a few bits of charcoal to the soil often increases the brilliancy of the flowers, and to some plants powdered bone imparts a more vigorous growth. To conclude: while plants may live and often bloom with little care, and often in spite of neglect, they will repay well directed care by vigour of growth and profusion of bloom. While their wants are but few, attention to these is essential to their health; and, in the house culture of plants, if they are worth growing at all, they are well worth the care which is necessary for successful culture.

Plants for House Culture.

One great reason of failure in the culture of window plants is the choice of unsuitable species or varieties. There are many plants, indeed a large proportion, with which room culture is an impossibility. We are not able to supply the essential wants of the plant, and it sickens and dies. Yet there are many, very many plants, which may be most successfully grown, and some of these we propose to mention. We must, however, bear in mind that very few plants will succeed, if they are removed at once from the warm, moist atmosphere of the greenhouse to the parlour or living room; the change is too great, and the plant receives a shock from which it seldom recovers. Plants from a greenhouse should be gradually hardened off, and then will not suffer. Of the tens of thousands of pot plants sold from the street stands in spring, probably not one in ten survives. These plants are forced into bloom in small pots, have no constitution, and very few of them ever give another flower. Plants taken from the garden in autumn to winter in the house should be carefully potted early in September, hardened off in the shade out of doors, and removed to the house when the nights become frosty; on warm sunny days they should have plenty of fresh air. Treated thus we may have autumn and early winter bloom, whereas, if we delay the autumn transplanting until the plants are checked by frost, they seldom give bloom till February. Our mention of species and varieties suited for house culture must necessarily be brief, and will be confined to winter plants There are many flowers which do very well in rooms in summer, and which are valuable for those having no garden. Many of the plants we mention are very constant bloomers, and the foliaged species are ornamental both in winter and in summer.

Roses.—These charming and popular flowers are not well adapted for house culture. The dry air affects most varieties unfavourably, and they rarely give satisfaction. Those with very double flowers seldom expand their buds. There are, however, a few old varieties which were formerly more common than at present, and which do well, and are worth growing. The best is Sanguinea, a very bright, semi-double variety, flowering in clusters, and always in bloom. Agrippina is a good pot Rose. The Pink monthly, if grown to a large plant, is seldom out of bloom. Jennie is a very fragrant Tea, and though not a first-class Rose is well worth growing. Safrano and Pauline Labonté, two of our best Teas, do well if the air of the room is kept moist and not too hot. Roses in the house need frequent stirring of the surface soil. If the earth in the pots is sour and sodden they soon become sickly.

Abutilons.—All the species thrive in the house, except perhaps the red flowered (A. insigne), and even this we have seen doing well. The best is the common A. striatum, which is always in bloom, is a very clean plant, and of symmetrical growth. Many species are tall growers, and are too large for common cultivation; where space and sufficient light can be given, they form fine bushes which give a profusion of bloom. A. Pattersoni is, as a rule, a very free blooming large-flowered variety of compact growth. A. Verschaffeltii has bright sulphur-coloured flowers in great profusion. A. Thompsoni and A. vexillarium variegatum are valuable for their bright foliage; the former, however, requires more heat than most kinds. A. vexillarium has charmingly-contrasted flowers of red and yellow. A. Boule de Neige is a new dwarf, free-flowering white variety, which promises to be very valuable. All Abutilons require a rich, light soil, with good drainage, and plenty of water and light. They thrive in the dry atmosphere of living rooms better than most plants, and with very little care give fine foliage and abundance of bloom.

Cupheas.—For constant bloom there is no better variety than the so-called "Cigar plant" (C. platycentra). It has bright, cheerful little flowers, grows freely, and never seems to become sickly.

Cyclamens.—The varieties of Cyclamen persicum are all well suited for house culture. A neater, more attractive plant, it would be difficult to find. The tuber should be started into growth in October, watered moderately until in active growth, then more freely. The more light and sun the better. Seedling varieties are easily obtained, and are very cheap; in colour they vary from pure white to deep rosy-red.

Cactuses.—These are mostly summer bloomers, and all do well with but little care. There is, however, one winter blooming species, Epiphyllum truncatum, which is a capital window plant. Give it a light, not very rich soil, with good drainage, be careful not to over-water, and it will not fail to give satisfaction. In the species the flowers are pink, but in the many varieties, all of which do equally well, we have many shades of red and violet, and some remarkably beautiful flowers. The best are Russellianum, violaceum, tricolor, salmoneum album, and cruentum; but all are good and worth growing.

Oxalises.—Of this charming family all the species commonly found in greenhouses may be well grown in the house. They should be started into growth in the room and not taken from a greenhouse. The foliage of most is neat and Clover-like, and that of some beautifully cut. The flowers are pink, white, and yellow. O. versicolor is a very pretty basket plant, beautiful in foliage, bud, and flower. The common yellow species (O. cernua) is very fragrant and free-blooming. O. laxula and the variety alba have large pink or white flowers. O. floribunda, both pink and white, is never out of bloom, winter or summer. Soil, rich and light, plenty of water when growing, gradually lessening the supply as the plants dry off, and perfect rest in summer until the time comes for re-potting and growth.

Triteleia.—This little hardy bulb (T. uniflora) gives plenty of flower in a sunny window. Treat the bulbs as prescribed for Oxalis. The flower varies from pearly-white to blue, and continues long in beauty. The odour of Garlic which pervades the plant is not perceived unless the blossoms are gathered. Bulbs cost only a few pence each. It is one of the best and most easily grown window plants.

Chinese Primrose.—This is a plant of easy culture, very free-blooming, never infested with insects, and always beautiful. Young plants raised from spring-sown seed will make large blooming plants by autumn. The soil should be rich and light, and the plants should have as much sun as possible. The same plant will bloom from November to May—indeed a fault of the plant, if fault it has, is that it often blooms itself to death. The double varieties are not as desirable as the single for house culture, and the Fern-leaved kinds, although elegant in foliage, possess no remarkable blooming qualities. This Primrose is one of the best of window plants.

Pinks.—Many of the monthly Pinks do well in the house. The plants should be lifted from the ground in September, and grown in a light airy room. They will not bloom freely until after the turn of the year, but when they once begin will continue for a long time. The three best in colour are La Pureté, red; Astoria, yellow; and President de Graw, white.

Myrsiphyllum asparagoides.—This pretty climber may be very easily grown as a common window plant, and will flower and fruit freely. Pot the roots in autumn in rich, well-drained soil, and give the plants plenty of light, with very little heat. The chief cause of failure with this plant is the heat of the room. Train the delicate shoots to a flat trellis, or let them run across the window on strings. Dust the foliage if it becomes dirty, and give air on every day when the temperature is above freezing.

Cypripediums.—One of the Lady's-slippers (C. insigne), is a good parlour plant. The soil should be coarse peat and fine sand. Keep the plant moist, but never wet. It will stand any heat, but suffers from cold. The curious flowers are produced in December, and last in full beauty two months.

Pelargoniums.—The zonal varieties are best for window culture. A rich, well-drained soil and plenty of sun and light are the requisites for success. If kept in the dark the plants soon become drawn, and if not frequently turned they grow one-sided. The aim should be to get short, stocky growth. The varieties with variegated foliage are all pretty, and generally do well in the parlour, but they are very inferior in flower. The species with scented foliage, familiarly known as the Rose, Lemon, Apple, Clove, Nutmeg, and Peppermint Geraniums, are all worth growing; in flower they are ineffective; but many of the varieties of the Rose Geranium have beautiful finely-cut foliage. The large-flowered Pelargoniums are generally unsuitable for window culture, though we have sometimes seen them well grown and bloomed.

Richardia.—This African Lily (R. æthiopica) is one of the best window plants. Give a rich soil and plenty of water—indeed, the plants may stand in water without injury. In spring, plant out the tubers, re-potting again early in September. The dwarf variety is desirable. The species with spotted foliage must be wholly dried off in summer; its only beauty is the foliage, the flower not being especially handsome.

Azaleas.—The varieties of Azalea indica and phœnicea bloom freely as window plants. The reason why Azaleas so seldom bloom well in houses is that care is not taken to ripen the young growth which succeeds the flowers, and in which the buds are formed for the next year's bloom. Unless the air of the room is kept moist, Azaleas are apt to drop their foliage. The species, white and purple, are better for house culture than any of the varieties, and of the varieties those with large foliage succeed better than the fine leaved kinds.

Camellias.—If the room is kept cool and without furnace heat Camellias may be bloomed in the house as well as in the greenhouse. The chief difficulty is the dropping of the flower-buds, caused by dry hot air. Do not attempt to force them, give plenty of fresh air on mild days, and there will be a fine spring bloom.

Oranges.—Orange trees, where there is room for them, may be successfully grown; they require the same general culture as Camellias, but will stand more heat. Cleanliness of the leaves and branches is of first importance. They bloom in spring, and seldom fail to set and ripen fruit. The Chinese dwarf Oranges are easily grown, and flower and fruit freely.

Pittosporum.—This old-fashioned plant (P. Tobira), is now very seldom grown. It is, however, to be recommended; the foliage is hard and coriaceous, well adapted to stand a hot and dry atmosphere; the flowers are pretty, freely produced, and deliciously fragrant. It needs but little care, is seldom sickly, and thrives in any exposure.

Jasmines.—The Indian Jasmine (J. revolutum) is a charming, free-flowering species, with rich dark green foliage, and fragrant yellow flowers. It thrives in the parlour, and well repays the trouble of growing. Soil a light peaty loam, good drainage, and plenty of water. We have seen one plant of this species entirely filling a large bay window, and bearing hundreds of flowers.

Tropæolums.—The varieties of Tropæolum minus will often make a window very gay with a profusion of bright flowers in spring. The plants, during autumn and early winter, should have all possible light, and be kept rather dry. They will not grow much until after January; then, as the days become longer, they will make long shoots with flowers in the axil of every leaf. A pretty mode of growth is to train the shoots backwards and forwards across the window; the flowers thus show well from the outside.

A great cause of failure in blooming hard-wooded plants well in the house is neglecting them during the summer. Parlour plants are too often, as soon as the weather gets warm, set out on a piazza, or under trees, or in a back yard, exposed to parching suns and drying winds, irregularly watered, and, in fact, generally neglected until autumn comes again. The wonder is how so many survive and why they bloom at all. Let us bear in mind that it is in the summer that these plants prepare for the winter bloom, and that they need care and attention then quite as much as in winter. Thus have we given a list of some of the plants suited for window culture. We have purposely omitted mention of the different species of Dutch bulbs, such as Hyacinths, Narcissus, &c.; of foliaged plants, such as Dracænas and Begonias, some of which do well; of Ferns, of Ivy, and of the large tribe of succulents, many of which are very ornamental; also summer-blooming plants, Hoyas, Fuchsias, Vallotas, and a host of others. The list is quite long enough for selection. We cannot each of us grow all, but each can choose his plants from those mentioned; and, with care bestowed intelligently, there is little fear of failure.

NOTES AND QUESTIONS ON THE GARDEN IN THE HOUSE.

A Good Basket Plant.—I have a large basket hanging in my porch, open to the south, which is always pretty, although it is several years since it was filled. The principal object is a large Golden Honeysuckle (Lonicera aurea reticulata), which hangs down in a most graceful manner. Associated with it are a few plants of Pteris serrulata, Oak-leaf and scarlet Geraniums, and a quantity of the wild blue Veronica or Speedwell; these form a combination superior, both in effect and endurance, to the choicest stove climbers.—J. Groom.

Dianthus Highclere.—Besides being "a useful plant for mixed borders," as your correspondent "N. H. P." states (see p. 482, Vol. VII.), we find a few plants of this Pink (well established in pots, in the same way as Carnations, and placed in a cold frame, from which severe frost can be excluded) invaluable for cutting and making good button-holes.—A. H. Thoresby.

Lobelia Blue Beauty.—This is an excellent kind both for window boxes and for beds. It belongs to the Pumila section, is a robust grower, and has flowers of large size, and rich in colour. It is largely used at Chiswick and at South Kensington, as its compact habit and rich dark blue flowers render it most effective in whatever way it is grown. In the working out of carpet designs in beds, or for edgings, Lobelias belonging to this section are most valuable, as they never grow out of shape, and are much more trustworthy than kinds belonging to the old speciosa strain. I can recommend Blue Beauty to all who want a good free-flowering and effective variety.—Alex. Dean.

Ferns for the House.—Mr. E. S. Rand finds Nephrolepis exaltata, Adiantum cuneatum, Pteris tremula, and P. cretica albo-lineata, thrive perfectly in the ordinary dry air of a dwelling-house. Pteris serrulata, which grows so freely in the hothouse, will not thrive in a room.

Salt Water Aquariums.—Several writers in the "Belgique Horticole" have given the results of their experience in managing marine aquariums. Mr. Bauwens says that he has possessed a marine aquarium nearly ten years, and the sea-water has never been renewed. All that he does is to add fresh water as the salt water evaporates, the same degree of saltness being invariably maintained.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Kitchen Garden.—Where Spinach is required all through the season, seed must be sown regularly every fortnight, as it will not stand much beyond that period without running to seed; any vacant spot that can be cleared from other plants may be used for this purpose. As the crop of Cabbage is cut, strip the leaves from the stumps, as they only harbour slugs and caterpillars; give the ground a good soaking with manure-water to assist the stools to throw out fresh side shoots, which will furnish through the remainder of the season a useful supply of tender sprouts.

Leeks.—If these have been treated as advised earlier in the season, by being sown at the proper time, and thinned out in the seed-bed, so as to give them enough room to grow, they will now be in good order for planting. The ground they are to occupy should be well dug to the depth of 15 inches, and broken fine, so as not to leave any large hard lumps. Plant in rows, 15 inches apart, with 8 or 9 inches between the plants; and, in planting, use a stout dibber, that will make holes 8 inches deep and 2 inches (or a little more) in diameter. In these place the plants, dropping in soil to the depth of 1 or 2 inches, but no more, leaving the rest of the hole open, and giving a good watering, so as to settle the soil. By only partially filling the hole, the requisite air gets down to the roots, and the opening above affords space for the stems of the plants to thicken, and also blanches them in a way that imparts the peculiar delicate flavour which a well-grown Leek possesses. If the ground is good and well enriched, they will, under this treatment, grow almost as thick as a man's wrist, and are far superior to the small, tough, strong-flavoured specimens of this vegetable which are often to be met with.

Killing and Charring Weeds, &c.—Hand-weeding is very slow work, and where all the culinary vegetables are grown in rows, as they ought to be, there is comparatively little of it required; but the late showery weather has much retarded the use of the hoe, and, in many cases, the removal of weeds by hand will have to be resorted to; it may be well to remind those who are novices in gardening that it will not suffice to merely pull up weeds that have got to a considerable size, and leave them on the surface of the ground, as with many of the annual species, especially Groundsel and Chickweed, it would merely hasten their increase, for the seeds in a very short time become sufficiently developed to grow, if the plants are pulled up when they are apparently only just opening their flowers. There is no safe way with them but removal to the refuse heap, where, if mixed with Grass mowings, green Potato-tops, and other vegetable haulm, they quickly get so hot by fermentation as to destroy the vitality of the seeds. Treated in this way, and soaked with soapy water and house-slops they become valuable fertilisers, and as such will be found by amateurs more effective than animal manure used alone. The right principle upon which to act is to return to the soil, in a decomposed harmless condition, all that it has produced of a useless description, without recourse to burning, which, under the impression that there is no other way of killing some weeds that are unusually tenacious of life, is sometimes resorted to. With good management this is unnecessary, and, as it is wasteful, should never take place. It may be necessary to point out that there is a great difference between charring and burning; in the former the bulk is comparatively slightly reduced; in the latter little is left. In a garden nothing should be burnt except it be too woody to rot, such as prunings and strong hedge-clippings. When hedges have received their summer dressing the clippings may be partially dried and afterwards used for charring weeds, such as Couch Grass. They should be mixed with clay or other earthy matter, sufficient to prevent the whole from blazing, a smouldering heat, sufficient to destroy vegetable life, being all that is required. The material so treated will not be very much reduced in bulk, and is very useful for digging into the kitchen garden, especially where the soil is of a heavy nature.

Hedges.—In summer-clipping it is necessary to discriminate between those that will bear it without injury and those that will not. Old hedges are not liable to be injured by clipping, but the vigour of young hedges is somewhat impaired by summer-pruning, on account of the large amount of leaves removed in the process. Amateurs will do well to note throughout the season the varieties of different plants, especially those of culinary vegetables, that succeed best with them; for, although a variety may be excellent in quality, local influences frequently render it unsuitable for particular soils. For instance, that excellent Strawberry British Queen will not thrive in some gardens, whilst in others, perhaps only a few hundred yards off, it will succeed admirably. The same fact is often noticed with Potatoes; these are not only influenced, as regards yield, by the nature of the soil in different places, but the quality is so much affected that particular varieties, when grown in some situations, would scarcely be recognisable when cooked. Long Carrots will not do at all in certain places where the Short Horn kinds do well.

Climbers covering walls, such as Roses, Clematis, Honeysuckle, and other plants of a similar character, will, as they make growth, require nailing, tying to wires, or securing in some way; but do not allow the shoots to grow too long before this is done or they are certain to get broken or chafed by the wind, and it is the more necessary to attend well to this in the case of any that have not yet covered their allotted space. It frequently happens that plants intended to cover walls, however desirable it is that the object should be accomplished with as little delay as possible, do not receive sufficient water in dry summer weather; even when enough rain falls to moisten the soil sufficiently where it is open, it does not always reach the roots of plants so situated, especially where the walls are high. In such cases good soakings of water should be given when it is dry. The blooming of Roses that cover large spaces on walls is often of very short duration, on account of the deficiency of moisture at the roots, and not only is the flowering affected, but the foliage is scanty, and becomes a prey to aphides and red spider; the use of the garden-engine or syringe is here indispensable, as the leaves, from their position, receive little benefit from being washed with the rains. As the first flowers of the Hybrid Perpetual section are over they should at once be removed, or they will seriously interfere with the later blooming. Keep the foliage clean and healthy by repeated use of the syringe; this will greatly assist them in producing flowers through the season.

Flower Garden.—The beds should be gone over every ten days or so to regulate the plants and remove all dead leaves and weeds; the cold chilly nights we have had since bedding-out time has prevented many plants making much progress. Tender subjects, such as Coleus, in some situations have suffered so much as to be past recovery; if the advice given some time back, of keeping reserve plants in hand to fill up blanks, has been followed, the utility of these will now be apparent, as tender plants that have been slightly protected from the cold will, in a very short time, be more effective than those that were first planted and that have been stunted.

Flower Garden and Pleasure Grounds.

Rhododendrons and other American plants will now be out of bloom, and their seed-pods may be removed with advantage, inasmuch as allowing them to remain has the effect of impairing the production of bloom next year. Where Lilies or Gladioli are grown among American plants they may now require to be neatly staked, when their showy blossoms will soon enliven the mass of dark-foliaged plants with which they are associated. In advising the removal of decaying blooms and seed-pods from the Rhododendron, it is unnecessary to say that the same applies equally to the Rose and to various other flowering shrubs; for, as a rule, blooms generally (unless seed is required) should be removed as soon as they begin to decay. When the weather is very dry it is always advisable about this time, or when American plants are making their growth and about to form flower-buds, to give the soil in which they are growing a good supply of water; but the frequent and heavy falls of rain experienced last month may, in many instances, have rendered this operation unnecessary. These rainfalls have also been beneficial to all newly turned-out bedding plants; but, wherever failures may have occurred, they should at once be made good. All beds planted in the embroidered or carpet style will also require to be frequently attended to, in order to check the undue development of certain species, so that others, more delicate, and of slower growth, may be able to keep pace with them; for it must be remembered that, in carrying out this style, species very distinct and dissimilar from each other must be used, as, for example, the richly-coloured Alternantheras, Coleuses, &c., from South America, and the hardy Ajugas, Antennarias, Sedums, &c., indigenous to Britain and the south of Europe; all of which, from their habit of growth, colour of foliage, &c., are well adapted to the purpose, and only require attention in training, regulating, and pinching in. Attend carefully to regulating the growth of the various climbing plants used in the parterres, such as Roses, Honeysuckles, Clematises, Tropæolums, &c. Many bulbs and tubers of various kinds, such as double and single Anemones, Ranunculuses, and others, will now be ripe, and should be taken up and stored; while, on the margin of shrubbery borders and similar situations, Narcissi and other bulbous plants, such as Scillas, Tulips, and Crocuses, should be over-hauled every two or three years, and, as their foliage will now be decayed, and their bulbs ripe, they may be taken up and stored until the autumn, when they should be again planted in fresh soil. With regard, however, to all such scaly bulbs as those of the Lily family, the sooner they are planted the better; and whenever they are taken up for the purpose of division or separation, beds or stations for them should be at once prepared, and they should be re-planted as soon as possible. All should be carefully labelled at the time of planting, so that their exact position may be known while they are at rest, and injury to them be avoided. Cuttings of Roses and other hardy shrubs, which may have been forced into flower, will now strike very freely if placed under hand-glasses, in any shady situation; as will also cuttings of many hardy herbaceous plants, but, in selecting such cuttings, avoid gross or strong shoots, as weak side-shoots will be found to strike root more freely, and will make better plants. Cuttings may also now be put under hand-glasses of Pansies, Pinks, Sweet Williams, and double Wallflowers, ; and seed of the Brompton and Queen Stocks may still be sown, with the view to having them in bloom next May.—P. Grieve, *Culford, Bury St. Edmunds.*

Orchids.

Of these many will now be considerably advanced in growth, and will require to be regularly and plentifully supplied with water. Calanthe vestita, C. Veitchii, and their varieties, should be watered with weak liquid manure twice a week. Plants of Odontoglossum grande should not be syringed over their leaves until they have partly formed their bulbs; for, if water should lodge in the growth before the bulbous part is formed, and allowed to remain there for any length of time, it will cause them to damp and rot. Odontoglossum Bluntii, Masdevallias, Oncidium macranthum, and their varieties, should have their leaves syringed in the morning on bright days; they will then have time to get dry before the evening, and be benefited by the dewy atmosphere of the house, a condition which is most essential to their well-doing. The East India-house will now require to be plentifully charged with moisture; this is important, as regards the health and vigour of the inmates, the greater part of which are air plants. Many Dendrobiums will now be making growth freely, and should have a temperature varying from 75° to 90° with sun-heat. Syringe the plants, benches, and floors, twice a day, and, on bright days, shade with a thin canvas. Most of the Cattleyas, especially the Trianæ section, will now require a greater quantity of water than they have hitherto had. Oncidium ampliatum and O. Lanceanum grow freely in a temperature of 65° by night and 80° by day, with sun-heat. O. obryzatum, O. flexuosum, O. sphacelatum, O. ornithorhynchum, O. leucochilum, O. altissimum, O. crispum, O. sessile, O. divaricatum, and O. bicallosum, all grow and flower freely placed at the dry end of the Cattleya-house. Miltonia Moreliana, M. spectabilis, and M. candida, while growing, require a great quantity of water, and Sphagnum Moss should be allowed to grow on the surface of the pots. Pilumna fragrans is deserving of a place in every collection of Orchids; if grown at the warm end of the Cattleya-house, it will produce its beautiful white flowers in abundance during the dull months of winter.—E. Culley, *Ferniehurst, Shipley.*

Indoor Fruit Department.

Vines.—The progress made by newly-planted Vines the first season has so much influence on their subsequent condition that their requirements should be a matter for careful consideration. The principal young shoots should be tied as each wire is reached; the side growths should not be pinched unless they are obstructing the light. One-year-old canes, especially of Black Alicante, Barbarossa, and Syrian, are often months in starting into growth freely; the shoots grow until they are 6 or 8 inches long and then stop. The lowermost shoot is frequently more vigorous than the top one; and, when such is the case, the strongest one may be taken up as the principal leader. Except in the case of Muscats no fire heat is now needed in Vineries, either during the night or at any other time, as a temperature of 65° can be maintained by husbanding the heat of the sun in the afternoon. Muscats will ripen, in a certain fashion, in a night temperature a few degrees below 70°; but, where perfection is desired, nothing under that need be tried.

Pines.—The first batch of suckers may now be taken off and potted. Queens, from which the earliest fruit was cut, should have them in a fine mature condition. Plants bearing fruit may have large suckers also, but the size should not be taken as a guide to their fitness for being taken off, for no sucker should be cut from the parent plant unless the base of it is hard and nut-brown in colour, let its size be ever so great. Those taken off and potted with blanched tender bases seldom succeed, and should be allowed to remain on the plant for a month, or even longer if necessary. In taking off the suckers, be careful not to bruise their leaves or injure their stem. Some of them may be twisted off with the hand; others with a firmer hold require to be cut closely into the old stem with a knife. But this mode of operation needs a little care when the plants are in fruit, as the foliage is easily damaged. Pull all the small bottom leaves off with the hand; but do not go above the point where the brown colour terminates, and do not touch any of the small roots which will be seen protruding round the bottom of the stem. Where accomodation is available, each sucker should be placed in a 6-inch pot, into which 2 inches of broken crocks should be put as drainage. The compost used should be the best fibrous loam, to each barrow load of which should be added an 8-inch pot full of fine bone-dust. When the soil is somewhat retentive, some horse-droppings may be intermixed with it. The soil should be firmly pressed about the sucker with the hand, and the pots plunged in any pit or frame where a bottom-heat of from 85° to 90° can be obtained for five or six weeks. The suckers should not be watered until their roots have reached the side of the pots. Syringe overhead every hot afternoon, and shade closely until enough roots are formed to prevent the leaves from shrivelling; or a check may be given from which it will take them a considerable time to recover. By putting the largest suckers in now the growth may be so far advanced that there will be every chance of their fruiting next autumn, instead of the following spring.—J. Muir.

Hardy Fruit.

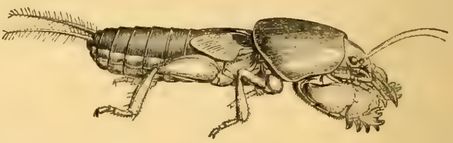
Strawberries, Raspberries, Red, White, and Black Currants and Cherries, are all ripening together this season, and what between gathering and protecting such fruits from birds, the labour required just now is enormous, but as this work cannot be deferred without running great risk of injury to either fruit or trees every effort should be made to accomplish it in time, whatever the cost may be. Fruit, for preserving, should be gathered when perfectly dry, and if there has been no rain whatever on the ripe fruit it is likely to keep all the better. Cover up with mats or close-meshed netting any currants intended for exhibition or dessert, but, before doing so, see that the trees are free from aphis, or the fruit will soon spoil. Give a final thinning to all stone fruits, which will now have completed the stoning process. Plums, especially, are a heavy crop, and if any are expected next season they should be severely thinned out, two light crops are, or ought to be, preferable to one heavy one, and is not nearly so injurious to the trees. Thanks to the heavy rains with which we have been favoured, the prospects of the Apple crop is much improved, as the blight has all but disappeared, and some kinds will, contrary to expectation, require artificial thinning. Of course, on old orchard trees thinning is quite out of the question, and they must be left to take their chance, but bushes, pyramids, espaliers, and cordons, should be as well cared for in this respect as Apricots, Peaches, or Pears. The shoots of Morello Cherries, Peaches, and Nectarines, intended for next year's fruiting, should now be laid, tied, or nailed in, avoiding the too common error of retaining too many; all should have space sufficient to allow of sunshine reaching every bud. Figs and Grape Vines in the open air are looking well this season; and, if we get hot weather during August and September, the crops will be good. Pinch out the points of the new shoots of Vines one joint beyond the fruit, and of Figs so soon as the new shoots have made three or four joints. Water copiously, as both kinds are very impatient of drought. Follow up former directions as to the destruction and prevention of aphis, spider, and mildew, as no satisfactory growth can be made by the trees so long as these pests infest them.—W. Wildsmith, *Heckfield.*

"In a Turnipy Manner."—The greater number of plants feed and grow at the same time; but there are some of them which like to feed first and grow afterwards. For the first year, or, at all events, the first period of their life, they gather material for their future life out of the ground and out of the air, and lay it up in a storehouse as bees make combs. Of these stores—for the most part rounded masses tapering downwards into the ground—some are as good for human beings as honeycombs are; only not so sweet. We steal them from the plants, as we do from the bees, and these conical upside-down hives or treasuries of Atreus, under the names of Carrots, Turnips, and Radishes, have had important influence on human fortunes. If we do not steal the store, next year the plant lives upon it, raises its stem, flowers and seeds out of that abundance, and having fulfilled its destiny, and provided for its successor, passes away, root and branch together. There is a pretty example of patience for us in this; and it would be well for young people to set themselves to grow in a carroty or turnipy manner, and lay up secret store, not caring to exhibit it until the time comes for fruitful display. But they must not in after-life, imitate the spend-thrift vegetable, and blossom only in the strength of what they learned long ago; else they soon come to contemptible end. Wise people live like Laurels and Cedars, and go on mining in the earth, while they adorn and embalm the air.—"Proserpina."

Bird Scarers.—We have not had any advice for the gentleman who wrote (see p. 496), saying that the birds had built in the pocket of one of his scarecrows; but a letter in the "Northampton Mercury" says:—"There is now to be seen in a fruit tree overhanging a walk in a garden near Vigo, on the Bedford Road, a robin's nest in the sleeve of an old coat, that has been used for a scarecrow! There are four eggs in the nest."—W. T. L.

MODES OF DESTROYING MOLE CRICKETS.

M. Oswald de Kerchove de Denterghem, writing in the "Bulletin d'Arboriculture Belge," gives the following description of several methods of destroying the mole cricket, which those who are troubled with them would do well to take notice of. Most Continental cultivators know to their cost the mole cricket that attacks the roots of plants, and are familiar with its singularly repulsive appearance, its deep brown colour, its enormous denticulated claws, and its immense cuirass:—"This insect is," said Olivier le Serres many years ago, "the most dangerous enemy that is to be found in gardens." It is not that the mole cricket devours the plants, for these insects are not herbivorous, but in their pursuit after other insects they excavate subterranean passages, and in doing so cut through all the roots they meet with. The mole cricket has for its implacable foes the golden beetle, moles, hedgehogs, crows, and jackdaws. There are many methods of catching this pest; one is to pour oil and water into their tunnels. This brings the mole cricket to the surface, but it only leaves its abode to die. The plan is an easy one when the insects have established their 'drives' in paths, but it is exceedingly difficult to capture them when they have commenced their inroads on parterres full of young plants. M. Henri Recoing some years ago gave the following advice respecting their destruction, as likely to be most successful. Having procured some fresh horsedung, a heap of middling size should be formed with it at the extremity of each little alley left between the plants attacked. This mass of manure, well trampled on, is left without being disturbed for five or six days. At the end of this time the trap may be opened. The gardener, armed with a fork, opens the mound of manure at a stroke, scattering and killing the mole crickets as they attempt to escape. The heap must then be re-made, and, if dry, it must be watered, and new dung added to it. If the "runs" of the mole cricket are in the direction of the heap, care must be taken not to disturb them, for the first arrivals point out the way to many others. This remedy is inexpensive enough. M. Gonet, sub-inspector of French forests, accidentally discovered another which is remarkably simple and ingenious. A bed which was used by him for raising new forest trees was attacked by the mole cricket; and the young plants could hardly be kept alive, owing to the constant movement of the soil. In order to protect them from the heat of the sun, M. Gonet shaded them well with straw mats, which were removed every evening. One morning, through forgetfulness, these coverings were not put on; and, after the evening watering had taken place, one of them remained upon the damp ground, until the following noon. When taken up, the ground beneath was still damp, and about ten mole crickets were brought to light. This plan of destruction was often adopted afterwards; it is an easy and cheap one, requiring only copious waterings and a few useless straw mats, choice being made of hot dry days to set the trap. At sunset, the ground is watered, and those portions of it nearest the borders to be protected are then covered. Attracted by the coolness of the ground, all the mole crickets in the neighbourhood will gather near the spot the following day when the sun is hottest, and nothing is easier than to seize and destroy them. This method will always be successful after May, and may safely be recommended. The pursuit of this insect should, where it exists, go on throughout the whole year. Above all, every effort should be made to destroy the eggs in the month of July. Those spots, which are slightly elevated in the form of a dome will be found to contain the nest, which is a little oval chamber below the level of the "runs." The eggs should be thrown into boiling water. In Belgium, the sandy character of the soil renders the inroads of the insects most destructive, and entails the necessity of the most persevering search for them, for they multiply at a prodigious rate. The eggs may be counted by the thousand in the nests, and if they are neglected for one year the consequences are felt to a disastrous extent long afterwards. They should be hunted down without mercy; and it is well to remember a German saying—"If you are travelling in a carriage and you meet a mole-cricket, pull up, even if you are going down hill, and do not resume your journey until you have crushed it."



The Mole Cricket.

LONDON FLOWERS.

The last ten years have seen a vast improvement in the taste displayed in many points of our domestic and social life, but perhaps in none is the advance more remarkable than in the attention now paid to the floral adornments of our rooms, balconies, and public places of resort. Formerly the most daring and ambitious spirit hardly aspired beyond a green box full of Stocks and Mignonette placed outside each window; now this dead level of uniformity is broken through, and our eyes are refreshed, and the dreary monotony of our far from picturesque streets relieved by the feathery whiteness of the Spiræa, the rich blue of the luxuriant and graceful Lobelia, the drooping bells of Fuchsias, the delicate hues of Pelargoniums, Cinerarias, Heaths, and many other greenhouse plants; the gay yellow of Calceolarias, the richer tints being tempered by the grey-green leaves of the Nasturtium; and last, though by no means least, by the graceful fronds of our common English Ferns. Ten years ago the idea of planting Ferns in a box as a decoration for a London window had hardly occurred to even the most enthusiastic plant lover; now, no house where plants are at all cherished is without some of them, and, as fresh green is, of all things, the greatest desideratum to the eye weary of dusty streets and sun-baked brick walls, their introduction has been a great boon to our citizens, especially those whose opportunities of enjoying the beauties of Ferns in their native haunts are few and far between. Ferns have also the great merit of being easy to obtain and cultivate. Those able to purchase more costly plants may affect to despise them, but it is surely pleasanter when seated at breakfast to gaze through a screen of Ferns than through those wire abominations known as dining-room blinds. It is a common remark that flowers outside a house are ostentatious, as, from their arrangement, sloping downwards to the outer edge, they cannot be enjoyed by the inmates; those who thus object, however, forget that they enjoy the full beauty of their opposite neighbour's horticultural efforts, and are bound to make him some return. Besides, is it nothing to add to the pleasures—all too scanty—of the dusty and toil-worn way-farers of our streets? And that the delicate flowers displayed in windows and balconies afford pleasure may be easily read in the admiring and loving glances directed towards them. Such a civilising influence is by no means to be despised; it carries on in the hot dusty streets the good work begun in our now well-cared-for parks, and perchance reaches many a son or daughter of toil, in whose hard-working lives parks and gardens are words, and nothing more. The increased use of flowers at balls, receptions, and other entertainments during the last few years has been most remarkable. Formerly a row of pots, generally of Hydrangea, placed under the staircase and backed by evergreens, was considered the *ne plus ultra* of beauty and good taste. Now colours are blended with thought and care, graceful Palms and feathery Ferns break up monotonous lines, and drooping Fuchsias, blooming Roses, many-hued Coleuses, and exotics beyond number, lend their aid to the general effect. On our dinner-tables, too, floral decoration reigns triumphant; and why not? The very first suggestion of such a thing is met by an outcry as to expense; and certainly, if nothing but Stephanotis, prize Roses, and Maiden-hair Fern will content us, the clamour is not without cause. But Ivy and common Ferns, Primroses, Moss Roses, red and white, and other ordinary flowers, are by no means costly; and these, arranged with taste by skilful hands, produce effects far superior to those attained by a less artistic disposition of the most expensive blossoms. So long, however, as ladies will not take the trouble to arrange their flowers themselves, so long will the floral adornments of their tables and drawing-rooms be unsatisfactory. Flowers give the finishing touch of refinement to everything with which they are associated, but their arrangement requires taste and judgment. Strong-scented flowers should neither be used in a drawing-room nor a dining-room.—" World."

Wireworm the Cause of Diseased Potato Haulm.—Mr. P. McKinlay, the well-known Potato grower, of Beckenham, who cultivates almost every kind of American Potato, has certainly among them some diseased haulm, but so very little as to be almost unworthy of notice, and that, he says, is caused by wireworm. Excepting one prominent failure, in the case of an English variety, brought about by having cut up the sets too soon, there is no disease in his grounds that can be attributed to anything but wireworm, and he grows over 100 sorts, covering about 2 acres of ground. It is notorious that wireworms are unusually plentiful this year, owing chiefly to the hot dry summer last year, which was favourable to insect life; they drill through or gnaw the young shoots of the Potatoes in an early stage of growth, the result of which is brown-curled foliage and stunted haulm. In some cases, Mr. McKinlay had lifted the damaged plants, found and killed the enemy, and then re-planted them, with every prospect of renewed growth. But why are the American kinds chiefly attacked? Mr. McKinlay suggests that the worms find the stems of these softer and more easily eaten than those of English kinds. Moreover, it is the practice to cut up the American varieties much more freely than those of English growth, and this, constantly followed up, must eventually weaken the progeny. Further, cut sets, when planted in cold ground, are much more liable to decay than whole tubers, and, lastly, it is probable that to bear the effects of a cold spring than our own varieties. In any American kinds, on account of their succulent character, are less able case, the same thing has happened now and then in Potatoes during the last thirty years, and would now have provoked but little discussion had not the American kinds been during the present season those most severely injured.—Alex. Dean.

The New Disease in American Potatoes.—I have noticed complaints in your columns as to a new disease having attacked the American varieties of Potatoes, but more especially the Snowflake. I am competing for Messrs. Hooper's prizes, and planted, on April 10th, 1 pound of Snowflake Potatoes (three), from which I got thirty-two sets, and am glad to say all have come up. I never saw Potatoes look better than they do at present, and if they only keep free from disease, I hope to have a good crop. They are planted in rows 2 feet apart and 1 foot asunder in the row. I generally trench in the manure in the autumn and let the ground get the full benefit of the frost, and I never touch it again till I dibble in the sets about the end of March. I have fifteen different kinds of Potatoes in my garden, and all the American kinds, including Early Vermont, one plant of which has curled up its leaves and assumed a yellowish colour, with some eight or nine Potatoes on the roots about the size of Peas. Late and Early Rose, Bresee's Climax and Prolific, and American Reds are looking remarkably healthy and are mostly in flower. I had a dish from the Early Vermonts the other day (one tuber weighed 4¾ ounces) and they were very good.—Myles E. Mather.

Raising Potatoes from Seed.—Last year I crossed some of the new American varieties of Potatoes with some of our best old sorts, and have at present a number of seedlings in small pots for the purpose of planting out. I found in the American varieties rather a short supply of pollen, and so made them the seed-bearing parents. Brownell's Beauty I crossed with Wood's Scarlet Prolific, a variety with red leathery skin but an excellent late keeper, which is very little affected with the disease in the worst seasons; the late American Rose I crossed with Fenn's Bountiful, a remarkably well-flavoured red kidney; the Early Vermont I crossed with Lee's Hammersmith Kidney, one of our best bearing early varieties, and of good flavour. My object in making these crosses was to see if the dwarf-growing habits and free-bearing qualities of these American varieties could not be obtained by raising seedlings from them. On some soils these new American Potatoes have a peculiar earthy flavour, and by crossing them with our best-flavoured kinds I hope to find that some of these seedlings may prove worthy of being grown as standard kinds; and, from their early dwarf habit, be able to resist the disease in wet seasons.—William Tillery, *Welbeck*.

Mixed Cropping.—This may be more advantageously employed in the case of early crops than late ones. Rows of early Peas, a good distance apart, afford great protection from cutting winds to tender crops grown between them. But for late crops, such as Broccoli, that are intended to stand the winter, the more open and exposed they are the better, for if at all drawn into weakly growth, they will rot with a slight amount of frost.—J. Groom.

Asphalte Walks (H. L.).—There is no objection to asphalte gardens walks if they are properly formed. The asphalte walks laid down by Mr. Meston in the public gardens of London and recently in Leicester Square are durable, in every way satisfactory, and not expensive. In positions in gardens much frequented, such as the immediate neighbourhood of the hothouses, forcing ground, and sheds, such walks are desirable.

Mr. Laxton's Peas.—In addition to the prizes offered for these in the Royal Horticultural Society's schedule, fourteen others will be awarded on July 7th for the following varieties, twelve plants of each to be exhibited in the green state, with pods fit to gather, and root and haulm complete, so as to show the true character of each variety, viz.:—Unique, William the First, Fillbasket, Omega, Laxton's No. 1, Dr. Hogg, and Supplanter. The first prize for each variety will be £1, the second, 10s.

"Curl" in the New American Potatoes.—"J. T." complains (see p. 491) that the leaves of Snowflake become "curled." Last spring I purchased one pound of Snowflake and Eureka; I cut them into single eyes and laid them out in an open shed for a day or two before planting them, and I have now eighty fine plants of Snowflake and Eureka, both of which are much more vigorous than any of their associates and show no "curl." With me, Eureka is much stronger than Snowflake.—C. Goode, *Eastcote*.

Simple Mode of Blanching Endive.—According to a writer in the "Moniteur Horticole Belge," Endive is blanched successfully by being planted in very well-prepared soil at 6 inches apart instead of in the usual more open way. When established, each bed is enclosed with planks 8 inches wide, set on edge, to prevent the outer plants spreading. When vigorous growth commences, the plants are pressed close together and blanch without further attention, as the leaves are not injured, as they sometimes are in tying, and they keep much better in the blanched condition.

SOCIETIES AND EXHIBITIONS.

CRYSTAL PALACE ROSE SHOW.

JUNE 27TH.

THIS was not only the best Rose show of the year, but, according to many, it was the best display of the queen of flowers that has been seen for the last ten years.

First-class Certificates.—These were awarded to the following new Roses:

Rose Mrs. Laxton (Laxton).—This variety promises to prove a welcome addition to high-coloured, free-growing Hybrid Perpetual Roses. Its colour is vivid scarlet, with a flush of crimson-purple on the lower petals, while its form reminds one of that of the well-known Marie Baumann.

Lady Isabel Cecil (Laxton).—This is a creamy-yellow Tea, of good form, vigorous, and free-flowering. The petals are stout and wax-like, and it possesses a delicate and grateful fragrance.

Duke of Connaught (Paul & Son).—A rich velvety-crimson Hybrid Perpetual, of good form and substance, and well adapted for exhibition purposes.

John Bright (Paul & Son).—Another distinct and effective Hybrid Perpetual, vivid crimson-scarlet in colour, and in form and substance all that can be desired.

Oxonian (Turner).—This is, in every way, a first-class Hybrid Perpetual Rose, so far as one can judge from cut flowers, which seem to be remarkably full, the petals being closely imbricated, and of a rosy-crimson colour, the revolute margins tinged with lilac. Its distinct character and good form ought to make it popular as a show variety.

Of other new Roses, Mr. Laxton exhibited fine stands; Mr. Turner showed Mrs. Baker, a fine, full purplish-crimson-centred flower of more than average merit, and John Stuart Mill, a splendid flower of a rich velvety crimson-scarlet.

Of new Roses of 1872 and 1873, Mr. George Paul had an attractive group, consisting of twenty-four varieties, among which we noted the following, viz., Emile Dupuy, a fine full flower of a delicate rosy-lilac colour; John Bright, a brilliant velvety crimson-scarlet; Empress of India, a fine full velvety-crimson flower; Madame Lacharme, white tinted with pale flesh; Peach blossom, pale silvery-rose suffused with lilac; Duke of Connaught, a rich velvety-crimson; Madame Nachury, bright rose; Mrs. Veitch, fiery rose; Madlle. Marie Cointet, rosy-salmon; Thomas Mills, bright rosy-crimson, with very stout and smooth petals; Duchess of Edinburgh, a fine full rosy-lilac flower; Reynolds Hole, a good dark rose, the colour a deep purplish-crimson; Captain Christy, a full pale rosy flower, with a deep rosy-salmon centre; Cheshunt Hybrid, one of the deepest coloured and brightest of all Tea Roses, the colour purple-lilac, flushed with crimson in the centre; Marie Finger, a large petaled variety of a delicate satiny-rose colour; Princess Beatrice, a fine globular flower, of a deep rosy-lilac colour, having a salmon-tinted centre; Emily Laxton, a bright deep rosy or rosy-salmon variety of good form, the foliage being very robust and healthy; Madame Marius Coté, a brilliant rosy-vermilion, and others. In the second prize group we noted Mons. Claude Levet, a deep crimson flower of good form, especially in the bud state; Bessie Johnson, a delicate full flower, of nearly the same colour as Peach Blossom; and La Favourite, a large-petaled variety, with bright rosy smooth petals flushed with vermilion in the centre. Mr. Bennett had a group of twelve in excellent condition, which obtained the first award in the class in which they were shown. In the nurserymen's class of seventy-two varieties Messrs. George Paul & Sons staged one of the best collections seen this year. They had, among light-coloured varieties, Niphetos, a fine creamy-white kind; Edward Morren, a full deep rosy variety; Mons. Noman, delicate peach; Lælia, a large globular rosy-lilac flower; Madame Berard (Tea), salmon-yellow; Madame George Schwartz, a full satiny rose; Madame Rivers, a fine globular lilac flower; Mrs. B. Ker, a full white kind flushed with Rose; La France, Captain Christy, Gloire de Dijon, Devoniensis, Princess Beatrice, a full globular rosy flower; Elie Morel and Marquise de Castellane, bright rose; and Alba rosea, a fine rosy-flushed Tea. Among the dark kinds may be named Exposition de Brie, rosy-crimson; John Bright, velvety-scarlet; La Fontaine, a bright lilac-purple; Richard Wallace, a full rosy-crimson; Oliver Delhomme, scarlet; Madame Crapelet, vivid rosy-scarlet; Cheshunt Hybrid, purplish-crimson; Lord Macaulay, velvety crimson, edged with livid scarlet; Marie Baumann, a really fine rosy-crimson flower; Charles Léfèbvre, crimson-scarlet; Duke of Edinburgh, scarlet; Dr. Andry, lilac-purple; Alfred Colomb, a fine rosy-scarlet variety, brighter than Marie Baumann; Madame Caillat is a good rosy-lilac incurved flower of excellent substance; and Louis Van Houtte, rich velvety crimson, similar to Xavier Olibo, but not quite so brilliant in colour. In the nurserymen's class of forty-eight varieties, three trusses each, Mr. B. Cant, Colchester, had some splendid blooms, among which those of Niphetos were superb; and Leopold Hausburg, a full deep rosy-crimson variety, was well represented; as were also captain Christy, Charles Léfèbvre (crimson), Duchesse de Caylus (vivid scarlet), Maréchal Niel, and General Jacqueminot. In the same collection were good trusses of Duke of Edinburgh, La France, Ferdinand de Lesseps (scarlet), Madame Victor Verdier, and Annie Laxton (a delicate bright rosy flower); and there were likewise handsome flowers of Etienne Levet (brilliant rose), Souvenir d'Elise, Devoniensis, Dr. Andry, John Hopper, Alfred Colomb, and Comtesse Chabrillant—a fine full rosy-lilac variety, now rarely seen, although it is really a first-rate and distinct Rose well worth culture.

Of single stands, the following, among others, were especially good, viz., Cheshunt Hybrid, a fine full flower, of the brightest rosy-purple, the centre being of the richest blood colour or crimson; Madame Lacharme, the best of all the lighter-coloured Hybrid Perpetuals, but not white, as is stated by some—on the contrary, it is a delicate blush; Comtesse d'Oxford, a large, dark purplish-crimson variety, having foliage the most vigorous of any with which we are acquainted, and in substance nearly as leathery as a Laurel leaf; François Michelon, a bright full-cupped variety, of a pleasing warm rose colour, the centre flushed with vermilion. Mr. Bennett, of Stapleford, staged a fine boxful of Mdlle. Marie Cointet, one of the best of the new Roses of 1873, and one which deserves more than a passing notice, not so much on account of its form and substance, both of which are most satisfactory, but inasmuch as its colour is unique. Some of the younger flowers indeed have stout cupped petals, just like those of Camellia Comtesse Lavinia Maggi, while the colour is of the warmest and brightest rosy-salmon imaginable, with just a flush of lilac on the older flowers; John Hopper, now a well-known variety, was well represented in its class, as was also Horace Vernet, a bright velvety-scarlet, the older petals blotched with blackish-crimson. Beauty of Waltham was staged in good condition, the blooms being round and full, and highly coloured. This is one of our finest rosy-purple varieties. In Madame Charles Wood, a bright rosy-scarlet, the younger flowers resemble crimson velvet in texture. This was shown by Mr. J. Keynes, who had also François Michelon, a full rosy-lilac kind. A fine stand of Baroness Rothschild came from Mr. Baker, of Heavitree, Devon, the flowers of which were fresh and exquisitely coloured. This is one of the most delicate of all the rosy varieties, and, when well grown, is second only to La France. The bright rosy Marquise de Castellane was represented by a stand or two of good blooms. Mr. Charles Turner contributed Maria Baumann, a well-known favourite, and Marguerite de St. Amand, a full flower, rather deeper in colour than Baroness Rothschild. Superb examples of Mdlle. Marie Cointet, staged by Mr. Bennet, of Stapleford, certainly deserve special remark, for, in size, substance, and colour they were unsurpassed. A stand of Firebrand, from Mr. W. Paul, was very brilliant, as was also his stand of the delicate-tinted Peach Blossom. Mr. Paul also had an effective exhibition of seedlings, partly unnamed.

Among Tea Roses we never saw such lovely blooms of Niphetos as were staged on this occasion—great wax-like flowers of an unusually soft primrose-tinted-white. Mr. Cant had a superb stand of Souvenir d'Elise, a delicate creamy variety suffused in the centre with salmon, and perfect both in form and bud; to these an extra prize was awarded. Of Maréchal Niel, Céline Forestier, and Triomphe de Rennes (Noisettes), there were excellent stands. La Boule d'Or is a really fine flower, as is also the delicate creamy-tinted Madame Caroline Kuster. A stand of Madame Berard was much admired, a kind which, in form, reminds one of Gloire de Dijon, but its salmon and golden tintings are richer in this than they are in that now well-known variety. Messrs. Paul & Sons had a splendid stand of yellow Tea and Noisette Roses, among which the trusses of Céline Forestier were remarkably fresh and beautiful. Amateur growers were well represented, and some of their stands, in point of quality, fully equalled, and, in several instances, even excelled, those staged by nurserymen, the varieties being in both cases the same.

Dinner Table Decorations.

Great as have been the improvements in dinner table decorations and other floral ornaments during the past ten years, there yet remains much of the old complicated form of arrangements, which, for many reasons, ought to be swept away. Intricate designs take a long time to arrange, and then rarely afford half the pleasure afforded by a simple, quickly-formed, and tasteful group of fresh foliage and flowers, which anyone may put in order in a few minutes. There is no reason why five or six hours should be devoted to ornamenting a dinner table, when nearly the same number of minutes would suffice, and our horticultural societies, when awarding prizes for this class of floral decoration, would do well to limit the time occupied in completing them to an hour, or even less. If the ultimate effect of bouquets and dinner table vases was necessarily proportionate to the length of time occupied in their arrangement, it would be different, but the reverse of this is generally the case. As a rule, those who arrange their stands with the greatest rapidity are those who show most taste. Simple and tasteful vases of wild Grasses and common border (or even wild) flowers are within the reach of every one who cares to have them, and any Society that offers prizes for bouquets and vases, in which hardy flowers, Ferns, and Grasses alone may be used, will do much real good, by demonstrating that "Orchids" and "elegance" are not necessarily synonymous terms, as some seem to imagine, and that vases and groups of hardy flowers, the produce of the humblest cottage garden, may be quickly and tastefully put together. Already our best professional decorators are fully alive to the beauty of some of our native Grasses and wild flowers for this kind of ornamentation, and the pearly Water Lily of our own ponds and streams is now often seen reposing at the base of a March stand among Forget-me-nots, wild Grasses, and feathery Lastreas, while the regal Phalænopsis from Java, and the golden-lipped Oncids from Brazil droop gracefully towards them from the vase above. In fact, in point of purity and freshness, no tropical flower can surpass our native Water Lily, and we have remarked some charming arrangements, of which this flower and rich purple-lipped Irids formed the most prominent and effective features. At the Crystal Palace exhibition, on Saturday last, were some striking table decorations, but all were, without exception, more or less exaggerated in style, and even in some cases painfully overdone. Mr. W. L. Buster, of St. Mary's Cray, had a well-decorated table, along the centre of which, in a line, were five tall, slender, trumpet-shaped vases; the central one of which was filled with wild Grasses, lit up by a spray or two of a rosy-flowered Lychnis; around its base was a conical mound of Moss and Fern, enlivened with white Water Lilies, and the wreath-like racemes of Passiflora princeps. The two end vases contained wild Grasses and sprays of a pale purplish-blue Campanula, their Fern-garnished bases being enriched with deep purple Iris flowers, associated with a bloom or two of the white Water Lily; the other two vases contained Grasses and scarlet Pelargoniums, their stems being wreathed with scandent Corydalis—altogether, a not inelegant arrangement, and one which in no way interrupted the view across the table, but there was nevertheless a meagre and monotonous look about the five slender vases that was not in every way quite satisfactory. A less pretentious and better style of grouping was that exhibited by Mr. Seale, of London Road, Sevenoaks. Here we had three March stands, and two trumpet-shaped vases. In the central stand, the vase-shaped top was filled with Feather Grass, enlivened with a spray of the golden-lipped Oncidium flexuosum; the tier below was fringed with Adiantum and Begonia fuchsioides, the deep green glossy foliage and heart-shaped coral-like buds of which contrasted with the white flowers of Stephanotis; and the effect was still further heightened by a sprinkling of the spray-like inflorescence of some fairy-like Saxifrage and small trusses of a scarlet, black-blotched Pelargonium. The mossy base was fringed with fronds of Adiantum macrophyllum, Adiantum Farleyense, Polypodium subauriculatum, and other rare Ferns, on which nestled white Water Lilies, and the brilliant scarlet spathes of the Flamingo plant. If this combination had any fault, it was the use of too many spathes of the last-named plant, which made the contrast of scarlet and white a little too violent. Mr. J. Hudson contributed a pretty group of three trumpet-shaped vases, the stem of the centre one of which was draped with sprays of blue Passion-flower, and the vase itself filled with elegant Grasses, Spiræa japonica, blue Corn-flower, and rosy-flowered Rhodanthe, the rim being elegantly fringed with the graceful flower-spikes of Dendrochilum glumaceum (one of the daintiest of all green-flowered Orchids) and sprays of Aaron's Beard (Saxifraga sarmentosa). The base of this arrangement was fringed with Adiantum scutum and Lastrea fronds, intermixed with sprays of white Spiræa, purple Bell-flowers, and the soft, silvery tufts of the Hare's-tail Grass. The bases of the two end vases consisted of fresh green Fern fronds, associated with which white Lilies and the scarlet-spathed Anthurium looked very attractive, the contrast between scarlet and white being, in this case, relieved by sprays of snowy Spiræa and graceful spikes of a tall blue-flowered Campanula. The buttonholes on Mr. Hudson's table were by far the prettiest in the whole exhibition; one consisting of a single half-expanded bud of a yellow Tea Rose, backed by its own leaves and jewelled with a sprig or two of blue Forget-me-nots, struck us as being, in its way, perfect; and another, consisting of a deep crimson Rose bud, a spray of Spiræa japonica, and Rose leaves, was very effective. Others were made up with flowers of Hoya bella, Moss Roses, and Forget-me-nots, backed by purple leaflets of the cut-leaved Japanese Acers. The first prize exhibition in the amateur's class was very effective, three graceful pinnate-leaved Palms being substituted for stands of cut flowers; at the base of these, on a conical bed of Maiden-hair and other Ferns, were laid white and purple Campanulas, scarlet Cactus blooms, and here and there a white Eucharis flower, while the little mounds around the bases of the two end Palms had trusses of orange-scarlet Ixoras in place of Cactus blooms. Among other exhibitions one of the prettiest and simplest was that staged in the ladies' class by Mrs. Seale, London Road, Sevenoaks. This consisted of three March stands arranged along the centre of the table, and six or eight little glass baskets, the latter being filled with living Sphagnum and water, and tastefully decorated with small Ivy leaves and blue Forget-me-nots. The degree of finish thus imparted to these little baskets was remarkable, and they were most deservedly admired by all who saw them. It does not appear to be generally known that sprays of the common marsh Forget-me-not will root freely in fresh Sphagnum and water, and will continue to flower for a fortnight at least if plucked just before the first flowers open. Around the bases of the different stands were Grasses, Forget-me-nots, Spiræa japonica, and spikes of pale blue Larkspurs, while graceful sprays of Maurandia were employed to fringe the edges. Three little cornucopiæ on the central vase were filled with blush, yellow, and deep crimson Roses, one flower of each, while the mossy mounds at the bases of the three stands were tastefully fringed with choice Davallias, Maiden-hair, and other Ferns, among which Grasses, Rose buds, and other flowers were sprinkled with excellent effect. The first prize button-hole consisted of a salmon-coloured Tea Rose, a sprig or two of scarlet Bouvardia, two white Tuberoses, the whole being backed with Maiden-hair Fern. Bouquets were by no means good, with the exception of one to which a first prize was awarded. This was a wedding bouquet, delicately and tastefully made up by Mr. Wood, of High Street, Sydenham. It consisted of white Tea Roses, Stephanotis, flowers of Odontoglossum Alexandræ, and of the purple-dotted O. Pescatorei, and two or three of the curious Snapdragon-like blossoms of the Alpine Utricularia, intermixed with Maiden-hair Fern.

Poetry of Nature.—In the middle of winter, vegetation sometimes assumes a more poetical aspect than it ever presents in spring. During a severe white frost the twigs of all the trees sometimes appear entirely covered with rime. —"Punch."

ROYAL BOTANIC SOCIETY'S EXHIBTION.

JUNE 30TH.

THIS exhibition consisted chiefly of cut Roses and fruit, the latter especially being excellent in quality. Mr. Sage sent a splendid cluster of Bananas from Ashridge, and the display of Grapes, Cherries, and Strawberries, was all that could be desired. The large exhibition tent was wholly filled with Palms, Ferns, Dracænas, and flowering plants, furnished by the Pine-apple Nursery Company, and arranged with much taste and good effect.

Certificates.—These were awarded as follows:

Rose Star of Waltham (W. Paul).—A full, globular-shaped, rosy-lilac, Hybrid Perpetual kind, suffused with crimson, the petals wax-like in substance and smooth.

Rose Magna Charta (W. Paul).—Another effective Hybrid Perpetual variety, globular in shape, and of a deep satin-rose colour suffused with crimson in the centre.

Rose St. George (W. Paul).—A third Hybrid Perpetual Rose, deep purplish-crimson in colour, the central petals being of a velvet-like texture.

Tree Carnation Scarlet Defiance (Turner).—A free-growing variety, with rather slender Grass. It is a profuse bloomer, the flowers being vivid scarlet in colour.

Pink Lord Lyons (Turner).—Flower, medium-sized; the colour a rich purple-lilac. This is a distinct and very effective variety, which ought to be a favourite wherever cut flowers are required.

Pink Harry Hooper (Turner).—A white-flowered variety, laced with deep lilac-purple.

Pink Shirley Hibberd (Turner).—A large and remarkably full flower, white in colour, laced with bright purplish-lilac.

Roses.—Among new kinds may be named Madlle. Marie Cointet, a full wax-like, delicate, rosy-salmon flower; Queen of Waltham, a bright rosy-lilac flower, crimson in the bud state and in the centre; Peach Blossom, a delicate rosy flower, globular in form before it is fully expanded, and flushed in the centre with rosy-crimson. Among other Roses were some fine blooms of the creamy-white climbing Devoniensis and the primrose-tinted Niphetos. Two boxfuls of Madame Lacharme, the new white or blush Hybrid Perpetual, were also staged in admirable condition, the flowers being full and of wax-like substance; a stand of the bright crimson, Marie Baumann, was staged in good condition, and close beside it a boxful of H. P. Comtesse d'Oxford, a fine large rosy-carmine flower with a crimson centre. Some good examples of Tea-scented varieties and Noisettes, including Maréchal Niel, Madame Levet, Boule de Neige, Gloire de Dijon, Céline Forestier, and others, were also exhibited. In the classes devoted to Hybrid Perpetual kinds were remarked excellent blooms of Maréchal Niel, of that rich golden amber-tint which betokens good soil and plenty of light and air; Louis Van Houtte, crimson; Abel Grand, a full incurved rose of a delicate peach colour; Princess Beatrice, a full globular rosy flower; Madame Marie Schwartz, a smooth petaled globular rosy-lilac variety; John Stuart Mill, a closely imbricated rosy-crimson flower, tinged with purple; Comtesse de Chabrillant, a globular full lilac-tinted flower; Captain Christy, a fine pale rosy-lilac flower, with deep rosy centre; Madame Villermoz, creamy yellow, with delicate rosy centre; Souvenir d'un Ami, a delicate deep rose-centred Tea, the petals having a shell-like lustre; Etienne Levet, a full purplish-crimson flower; and General Jacqueminot, vivid crimson-scarlet. These were all in excellent condition, as were also the ever-welcome, deliciously perfumed, La France; the full rosy-lilac Baroness Rothschild; and Madlle. Eugénie Verdier, a delicate-tinted pale rose variety, with a deep rosy-salmon centre, which is very distinct.

Miscellaneous Subjects.—Two or three very effective stands of cut flowers were staged, among which were the following—viz., Lathyrus grandiflorus, Lychnis coccinea, orange Lilies, white and blue Bell-flowers, Pinks, Sweet Williams, Lychnis flos Jovis, Spiræa japonica, and Larkspurs of nearly every shade of blue. A potful of the yellow-eyed lilac-rayed Aster elegans was also particularly beautiful. Among trusses of stove and greenhouse plants were Allamanda Hendersoni, Cattleya Mossiæ, the scarlet-spathed Flamingo plant, white Rhynchospernum, scarlet Ixoras, rosy and white Heaths, blue Statice, rosy Azaleas, and scarlet Begonias. Four very effective circular shallow baskets of Tea and other Roses, neatly arranged in Sphagnum Moss, were much admired; and also some baskets of Lobelia pumila magnifica, which is certainly one of the finest in cultivation, being of dwarf cushion-like habit, densely set with large deep blue flowers. A fine new white purple-laced Pink named Boiard was shown by Mr. Turner; it was also exhibited at the Crystal Palace exhibition last week, and there awarded a first-class certificate.

Fruit.—Grapes were, on the whole, well represented, and in the class for baskets of 12 lbs. each there were no fewer than eight entries. Mr. Bones's Black Hamburghs were small in berry, but, as regards colour and bloom, they were perfection. Mr. Douglas had also a splendid basket of highly-coloured and superbly-finished Hamburghs. Mr. Bridgeman contributed large Hamburghs, but, unfortunately, they were rather deficient both in colour and bloom. A very good basket of Madresfield Court was exhibited by Mr. Grimmett, the bunches being well furnished and the berries large and well coloured. In the class for baskets (12 lbs.) of Muscats, Mr. Douglas again contributed well-finished bunches tinted with that rich golden-amber, a colour so much desired in Muscats. A basket of excellent fruit of the same variety came from Mr. Fiest, and, compared with these, the other two baskets staged afforded a marked contrast, the fruit being perfectly green. In the class for three bunches of Muscats Mr. Fiest had small but well-finished amber-coloured clusters in first-rate condition. Mr. Bannerman and Mr. Bond also had large bunches, but not well-coloured. In the class for three bunches of Black Hamburghs Mr. Johnson contributed well-coloured clusters, both bunches and berries being large and well-coloured; fruit of the same variety came from Mr. J. Akhurst, Mr. Sage, and Mr. J. Douglas. Mr. Grimmett had three good clusters of the large oblong-berried Madresfield Court, and Mr. J. Douglas sent Royal Ascot nearly perfect in colour and bloom. This Grape is a very free fruiting black variety, and some of the berries show the sutural markings so characteristic of Esperione. Messrs. Lane & Sons were the only exhibitors of Vines in pots, of which they had splendid examples, Foster's Seedling and Buckland Sweetwater being furnished with from twelve to twenty clusters each.

Strawberries.—This useful summer fruit was shown in admirable condition. Four boxes of very fine fruit came from Mr. J. Douglas, the varieties being a fine, rich, crimson-fruited seedling; Duc de Magenta; Admiral Dundas, a well-known, irregular, very large variety, bright crimson-scarlet in colour; and Amateur, a large conical-fruited kind, of the darkest crimson colour. Mr. Clark showed four fine dishes, including examples of Myatt's British Queen, a conical-shaped, high-coloured fruit, of excellent flavour; Dr. Hogg, similar in colour, but more inclined to the irregular cockscomb shape; President, a rather coarse, crimson-fruited variety of cockscomb shape; and Sir Joseph Paxton. Mr. Charles Turner had very fine dishes of James Veitch, a showy, light-coloured fruit; Sir C. Napier, President, rather small; and Léon de St. Lamier, a large cockscomb-shaped fruit, similar in colour to the British Queen. Mr. Smith had four good dishes of Sir J. Paxton, Dr. Hogg, and British Queen, and a variety named Lucas, closely resembling Sir J. Paxton in shape and colour.

Cherries.—Good dishes of May Duke came from Mr. Musk, the fruit being of average size and bright red in colour, mottled with deep crimson. Mr. Chard had Red Bigarreau and Bigarreau Napoléon; and richly-coloured fruit of the last-named variety, and Elton came from Mr. Douglas; and Mr. Chard had two of the finest dishes of Black Tartarian we ever saw, some of the fruits measuring individually fully an inch in diameter.

Pines.—Two well-ripened Queens came from Mr. Bond, and Mr. Sandford had also a good pair, but scarcely so well finished. In the class for single Queens Mr. Sandford had a good well-finished fruit of 3lbs. or 4lbs. weight; and Mr. Bond had also an excellent specimen, rather larger and better in colour. Mr. Ward showed a large Providence, weighing 9¾lbs. Mr. J. Douglas had a small Charlotte Rothschild.

Peaches and Nectarines.—Excellent dishes of Peaches came from Mr. E. Lake, who had Grosse Mignonne and Royal George in good condition. Mr. Johnson had also Violet Hâtive and Têton de Venus of good quality, and Mr. Bones staged excellent fruit of Bellegarde and Noblesse. Nectarines generally were highly coloured and excellent in quality. Mr. E. Lake had very fine fruit of Elruge, and good specimens of the rosy-mottled deliciously-perfumed Violet Hâtive. Mr. Johnson had highly-coloured examples of Elruge and the purple-coloured Violette Grosse. Mr. Bannerman had well-ripened and richly-coloured dishes of Violet Hâtive and Downton; and Mr. Grant had the same varieties, equal in size, but inferior in point of colour.

Figs.—Good dishes of Brown Turkey, and a very small variety covered with bluish bloom, named Early Violet, came from Mr. Sage; and Mr. Pottle had large specimens of white Marseilles and Brown Turkey.

Melons.—Of these the best came from Mr. Coleman, who had Reed's Scarlet-flesh and Eastnor Castle, green-flesh, a medium-sized Pear-shaped fruit of excellent flavour; about a dozen Melons were exhibited, and the judges declared the last-named variety to be the finest flavoured specimen shown.

FLORAL DECORATIONS AT EXETER.

The Devon and Exeter Horticultural Society's show took place on the 18th ult., at Exeter, and attracted large numbers of visitors. In the classes for Roses, the principal prizes amongst nurserymen were carried off by Messrs. Paul & Son, of Cheshunt, Mr. Charles Turner, Mr. R. T. Veitch, and Messrs. Lucombe, Pince, & Co. In the amateur competition, Mr. R. G. Baker and Miss Lloyd of Graslawn took first prizes, Mr. Baker taking four first prizes out of six classes, the other two being awarded to Miss Lloyd. The remaining exhibitors in these classes were Messrs. T. H. Gould, J. W. Chard, T. Jowitt, R. Sbate, and R. Robson. In the open competition, Messrs. Paul & Son and Mr. Charles Turner carried off most of the principal prizes. The floral decorations were excellent. In the class for table decorations (ladies only), the exhibitors were restricted to a group of three pieces. The first prize in this class, a gold bracelet, presented by Mrs. H. Wilcocks, was awarded to Miss Emma Wish, Broadclist, for three March stands, with trumpets rising out of the top tazzas, which were very gracefully fitted up—the arrangement of the flowers in the trumpets being particularly good; but the general effect of this group was considerably marred by the size and heavy appearance of the Fern fronds employed for resting on the tablecloth round the edges of the lower tazzas. These straggled over the cloth, and left room for little else besides; but the arrangement of the flowers in the tazzas and trumpets was excellent. The second prize in this class—an inkstand, presented by Mr. J. Geary—was awarded to Miss Chard, of Salisbury, who employed, in place of vases, three well grown and very effective plants of Cocos Weddelliana, with flowers arranged round the base of each. There was a sharp competition between Miss Wish and Miss Chard for the first prize, and, had the latter exhibitor been more careful in concealing the pots from view, and had the arrangement of her flowers been a little lighter, there is no doubt she would have been awarded the first prize, but it was in lightness of touch that Miss Wish excelled. The third prize, a pair of candlesticks, also presented by Mr. J. Geare, was awarded to Mrs. W. J. Veitch, of Torquay, who showed much taste in the arrangement of the flowers employed. In the decoration of one table a quantity of Pyrethrum or Feverfew was employed—a plant quite unfit for cut purposes, on account of its odour—but as troughs were made use of, filled with flowers, in addition to the three centre vases, a prize could not have been awarded for it, no matter how well the flowers might have been arranged, as they could not be defined as "three pieces for the decoration of the dinner table" mentioned in the schedule, which all intending exhibitors should read over carefully. In the class for a single vase of flowers, the first prize, an electro-plate and glass flower-stand, presented by Mr. A. E. Gates, went to Miss Ada M. Drew, Silverton, for a pretty drawing-room vase, in which wild Grasses and blue Lobelia were most effectively employed in the trumpets; the second prize, a flower-stand, presented by Mr. Ellis, went to Miss Chard; and the third, a volume of poems, presented by Miss Fitze, to Miss Alice G. Drew. In the class for a vase of wild flowers, the first prize, a flower-stand, given by Mr. J. E. Lake, was awarded to Miss Ada M. Drew, for, without exception, the best arranged vase in the entire exhibition. It was a very small vase of the March type, in which, amongst other flowers, Forget-me-nots, Dog Roses, and the tinted seed pods of the Sycamore were employed with excellent effect; the second prize, presented by Mrs. Henry Palk, was won by Miss S. Haywood, Exeter; and the third by Miss Chadwick, Ide, for tasteful arrangement. The best collection of wild flowers, as regards the number of varieties, &c., was exhibited by Miss Gray, of Exeter, and, had a few Grasses been employed to give lightness, there is no doubt her name would have stood high on the prizetaker's list. The class for hand bouquets was the richest in the exhibition. The first and second prizes were awarded respectively to Mr. W. J. Veitch, Torquay, and Miss Veitch, of Exeter. A. HASSARD.

Tender and True Cucumber.—This is a noble Cucumber, large in size, deliciously flavoured, handsome, and prolific; but from such a raiser as Mr. Douglas these are qualities which we might expect.—R. GILBERT, *Burghley.*

Horticultural Club.—We are informed that a dinner will take place at the Club House, 3, Adelphi Terrace, on Wednesday, July 7, at six o'clock, at which the committee will be glad to see any members who may like to join them. We hear that there is a considerable increase of new members.

Hardiness of Peaches and Nectarines.—Some Peaches and Nectarines, which stood out of doors during the last winter, well into spring, are at present swelling off good crops. Some cultivators do not believe that these fruits are thoroughly hardy. This is the second case, in my own experience, of their having been severely frozen without injury.—R. P. B.

Double Yellow Auricula.—I have obtained this fine, but scarce, hardy plant from Ireland. The blooms sent along with it were so double as to excite surprise. I have also a fine double purple kind. Both of these Auriculas will be eagerly sought for when better known.—A. D.

Sarmienta repens.—This is now prettily in flower on the rock-work at Kew. It has very small leaves and flowers, not unlike those of Mitraria coccinea. It is the sole representative of a Chilian genus of Gesnerworts, and is well worth attention as a rock plant.—JACKSON GILLBANKS, *Whitefield House, Mealsgate, Carlisle.*

Mauve Beauty Stock.—This beautiful summer pyramidal Stock, which is certainly one of the best in cultivation, is now finely in flower in Mr. Dean's seed grounds at Hounslow. It is a kind which comes true from seed, and produces at least 70 per cent. of double flowers, a proportion amply sufficient to satisfy the most fastidious.—Q.

Orange Fungus on Roses (T. S.).—It is too late; for any remedy, but we should brush each shoot with a solution of soft-soap, and dust with powdered sulphur, leaving it on for two or three days; then syringe it off, and renew the application as long as any remains on. This will probably destroy the Fungus, and the plants may have vigour enough to recover afterwards.

Cultivating Wood Plants.—Wood plants are kept so warm in autumn and winter by the fallen leaves that they are ready to grow on the first really hot day. After that they enjoy the direct rays of the sun for a few weeks, and thus make considerable growth before the leaves of the trees are large enough to shade them. One should imitate these provisions of Nature by placing wood plants in the shade of trees, rather than in the shade of buildings, which will keep off the sun in the spring when it is needed to start the plants and bring out the flowers quickly.—"Cultivator."

Flowering of the Phormium tenax Colensoi in Ireland.—You noticed, some little time since, the blooming in Lord Northampton's conservatory, at Castle Ashby, of the Phormium tenax variegatum; allow me to inform you that Phormium tenax Colensoi, purchased two years ago, is blooming here in the open air, in a sheltered glen, close to the sea. As I have not heard of this variety having bloomed before, I shall be glad to hear from any of your correspondents interested in these plants, whether my plant is the first to have bloomed, or not.—W. E. GUMBLETON, *Belgrove, Queenstown, Cork.*

Hardy Water-side Ferns.—The larger American hardy Ferns flourish best by the sides of brooks. They grow naturally in Mr. Hovey's grounds, and, though thoroughly taken out twenty-five years ago, they spring up again whenever the ground is left uncultivated for three or four years, showing that millions of spores retain their vitality and grow whenever circumstances are favourable for their development. A gardener of his acquaintance threw fruiting fronds into the water tank, and the Ferns grew up in the pots watered from it, so that in fact they were weeds. Those fine hardy Ferns, Struthiopteris, Onoclea, Osmunda, &c., deserve to be more frequently seen, not only in the Fernery, properly so called, but near the water-side in shady places.

No. 190.] SATURDAY, JULY 10, 1875. [Vol. VIII.

> "This is an art
> Which does mend nature: change it rather: but
> THE ART ITSELF IS NATURE."—*Shakespeare.*

PLANTING OUT *v.* POT-CULTURE.

THE two great advantages to be obtained from planting out are a diminution of labour and greater luxuriance of growth; and, in the case of certain plants, grown upon an extensive scale, where a structure can be specially devoted to them, there can be no doubt that planting out is the right thing to do. In houses, on the contrary, where a miscellaneous and varied collection of plants is grown, judgment and discrimination must be exercised in respect to the permanent position of individual specimens. I once knew a gentleman who, having built a conservatory and bought a collection of plants with which to stock it, was determined to realise grand results and economise labour by planting them all out. As the collection happened to include such plants as Geraniums, Cape Heaths, Heliotropes, and Orange trees, the result may be more easily imagined than described. A thorough knowledge of the constitution and requirements of the plants to be used is necessary before planting a conservatory or winter garden. I was much pleased with the winter Garden of the Jardin d'Acclimatation at Paris the first time I visited it—a few cool-house Palms and Ferns, two or three Acacias, a few Camellias and Dracænas, a fine turf consisting of Selaginella, and, if I remember rightly —for it was in 1867—a waterfall, associated with such things as Tradescantia and Papyrus tastefully planted, made up a scene which was charming from its very simplicity. There was no undue crowding; on the contrary, every plant had abundance of room, and all seemed to enjoy the most robust health. In Germany, I once saw a good specimen of planting-out and pot-culture combined. There apertures are cut in the Selaginella turf, in which flowering plants in pots are inserted, and they are renewed as often as required. The more striking features consisted of Palms, tree-Ferns, Araucarias, &c., planted out, the more tender and evanescent plants being kept in pots, and, in this way, the place always had a fresh look, unobtainable in any other way. It is only, however, in houses of considerable dimensions in which this continuation can be carried on. A Latania, Dicksonia, or Araucaria planted out is nothing, if not of good size, and, where the space is insufficient to permit full development, pots must, to a great extent, be relied upon. "It goes to my heart," said a French gentleman to me once in Normandy, "but I must cut the head off that Gum tree." He had planted a Eucalyptus globulus in his conservatory, for which it had grown too large, and stern necessity compelled him to decapitate it; a result which will inevitably happen if the individual character of each plant put out is not accurately considered. To a man of experience this is, of course, easy enough to determine, but to amateurs it is often a stumbling block. Many plants required for winter decoration in small pots may be grown much more luxuriantly by being planted out during the summer months, either in the open air or in a cold frame. The Indiarubber plant (Ficus elastica), struck in November, potted into 60-sized pots, and planted out in April, yields most satisfactory results. When on the Continent I grew some hundreds in that way; they were planted out upon a spent manure-bed, and shaded until they were able to withstand the fierce rays of a July sun without protection. Water was given them by the bucketful, and they grew like Willows; they were taken up in the autumn, placed in 32-sized pots, and were sold from 3s. to 6s. apiece. Dracænas, treated in this way, soon grow into large plants. Last summer I planted out, on the 1st of July, in a frame, some seedling Cyclamens, which, when taken up in October, had four or five dozen blooms on them, and their foliage was handsomer than that of plants grown in pots, but it must be admitted that they would not stand forcing; while plants with less luxuriant foliage, that had been grown in pots all the summer, I got into full bloom by Christmas. Various kinds of Begonias, especially Dregii, if put out in cold frames, make handsome plants. Abutilons, also, do well shaken out, headed back, and re-potted again in September. I once had a quantity of Eupatorium ligustrifolium, huge old plants, which were annually treated in this way; some of the roots were pared off in planting out; when potted they were set in a cool-house, where they flowered profusely, and came in usefully for cutting; had they been kept in pots all the summer they would have starved. I remember once, too, taking up a collection of Tropæolums in the autumn, and placing them in a temperate house. They were tied up to the rafters and furnished a good many flowers during the early winter months. Still, although an advocate for planting out in the way mentioned, it is a system that cannot be carried beyond certain limits; if flowers are required in mid-winter and early spring, the plants which are to produce them must be subjected at times to a strong artificial heat; and, in order that they may thrive under such conditions, the pots must be full of healthy active roots; in other words, they must be what all practical men understand by the term established. In order to force Strawberries, for instance, successfully, they should have the soil in which they are growing matted with roots; and the same rule holds good with nearly all plants that are to be subjected to a strong heat. Cyclamens, Azaleas, Camellias, Pelargoniums, and most kinds of bulbs, will not force well unless the soil which sustains them be thoroughly filled with fibres; planting out, therefore, requires judgment as regards the use to which a plant is to be put; for its blooming season, and similar matters, must be considered. Plants for the decoration of rooms cannot be too well rooted, for, if not well established, they soon become sickly, the leaves turn yellow, and the whole plant languishes and ultimately dies. Rapidity of growth is generally obtained at the expense of solidity. When grown rapidly during summer, and taken up and potted in autumn, they must be shaded for a time, and do not, therefore, acquire that hardiness of constitution which the autumn sun alone can bestow, and which enables them to withstand the perils of winter much better than plants more tenderly nurtured.
JOHN CORNHILL.

Byfleet.

Planting-out Gardenias for Cut Flowers.—Growing Gardenias in pots is a tedious plan. In order to grow them well the roots must have a run, and a run, too, among good feeding material. But it is not the mere gain in the way of growth to which growers in general have to look, it is the crop of flowers. Well, then, if anyone wishes to have them by the bushel make a young plantation, as is often done with Camellias, and let the plants have their own way for a while, and there will be abundance of flowers at more than one season. The most successful practice which I have seen in this way is that of Mr. Denning, at Lord Londesborough's, Surbiton. There a narrow pit with a bed on each side is devoted to Gardenias, and there the flowers are magnificent and in abundance; the foliage is of the most tempting kind, and insects seem to have no power to gain anything like a foothold. Since I saw what was done there I have tried the plan myself, and with the very best success. The way I did was to take a portion of a warm temperate house in which there was some staging; I had a compost of loam, peat, and leaf mould mixed together, to which was added some sand. This was placed on the stone bench, levelled, and then planted, and half the attention needed for pot Gardenias served the purpose in this case. Several dozens planted in this way yield quantities of bloom to succeed Camellias and to take their place up to November. The sorts which I have used are G. Fortunei and radicans; the former is a vigorous grower and needs pruning; the latter may be allowed to go on as it likes. Syringing and occasional brushing are all that is necessary to keep the plants clean. I have advised numbers to try this method of cultivation; and, so far as I have been able to learn, all have done so with satisfaction and uniform success.—JAMES ANDERSON, *Meadowbank Nurseries, Uddingston, N.B.*

Comfreys for the Wild Garden.—The Symphytums or Comfreys are most valuable for the shrubbery and wild garden. They grow freely—in fact, rampantly, under trees or elsewhere, and are good and showy plants. S. asperrimum is the tallest, growing to 6 feet, and has red flowers changing to blue. S. caucasicum (2 feet), white flowers, and S. tauricum (3 feet), also with white flowers, are all fitted for naturalisation. S. bohemicum, with brilliant red flowers, only growing to 2 feet, is worthy of a place in the border, as is the variegated form of S. officinale (a handsome plant), and, perhaps, S. tuberosum, with yellow flowers, though I am not certain that the latter may not prove too rampant.—OXON.

NOTES OF THE WEEK.

—— Mr. Noel Humphreys has just finished a series of fifty sketches of the rarer Alpine flowers from life. They include representations of nearly every large family of true Alpine flowers, and are, for truth to Nature and pictorial effect, the most admirable sketches of plant-life we have ever seen. They are to be reproduced in colour for a second volume of "Alpine Flowers for English Gardens."

—— Mr. R. Gilbert, of Burghley, a frequent contributor of notes to The Garden, won the Carter £50 Cup prize, on Wednesday last, at South Kensington, with a remarkably fine collection of vegetables. Mr. Gilbert originated the recent successful vegetable shows, and has frequently proved that his skill in this most important branch of gardening is unsurpassed.

—— A meeting of horticulturists is to be held on Wednesday, the 21st of July next, at six o'clock p.m., at the Criterion Hotel, Piccadilly, to consider the best means of carrying out the pledge to hold an International Horticultural Exhibition during the year 1877.

—— Mr. Geo. Maw has succeeded in flowering, in his Lily-house at Benthall Hall, the extremely rare Lilium polyphyllum, from North-west India. The flowers are of a pale cream colour freckled internally with linear dark purple markings.

—— The entire valuable collection of plants brought together by the late Mr. Thomas Bewley, of Rockville, Dublin, will be disposed of by auction on Wednesday, the 14th inst., and following days. The collection is one of the most remarkable in the United Kingdom.

—— Mr. F. Rivers sends us a fine specimen of Pear Citron des Carmes, trained as an upright cordon, and laden with fruit. The upright or columnar form of trees with simple stems is, for certain positions and circumstances, a desirable one.

—— We are now having figured for The Garden the most distinct and important varieties of Lettuce in the very remarkable collection shown at Kensington, on Wednesday last, by Messrs. Carter & Co., of Holborn. We propose to describe all the really important varieties of Lettuce cultivated in Europe, and to illustrate the article with faithfully drawn wood-cuts of each variety.

—— We have received a copy of Mr. Darwin's new work, "Insectivorous plants," which contains within its 450 pages an enormous number of facts bearing upon this interesting question. The book is of such importance that we must defer noticing it at length till a future occasion, and shall now content ourselves with remarking that it affords one more opportunity of admiring the lucid style of the author, his skill in arranging the various facts set before his readers, and his remarkable powers of argument.

—— At the general meeting of the Royal Horticultural Society, held at South Kensington, Mr. Berkeley announced, in reference to the Potato disease, that Mr. Worthington Smith had discovered the true resting spores of the Fungus (Peronospora infestans), which produces it. Dr. Masters, in alluding to the subject, drew attention to the fact that the Royal Horticultural Society, through its scientific members, Mr. Berkeley and Mr. W. Smith, had really done valuable work in unravelling the mystery connected with the Potato disease, and stated that Mr. Smith's discovery was of the utmost importance. The so-called new Potato disease, it was added, appears to be merely a form of the ordinary disease, and one confined to American varieties, that have been produced from home-grown sets.

—— Lilium giganteum is now in perfection in London gardens. We have received the following from Mr. D. Uphill, Moreton, Dorchester, recording the fine proportions it attains in Dorsetshire:—"In your number for March 6th, p. 191, Professor Owen has given an interesting account of his Lilium giganteum, grown in the open air. I have now in flower a specimen much larger. The flower stem is 9 feet 1 inch in height, and is 6 inches in circumference at 2 feet from the ground; it bears eleven flowers, nine of which are fully developed at the time I am writing, and the others just unfolding. Each flower is about 8 inches in length. The effect of this plant is extremely fine, and, situate, as it is, in a bed of Rhododendrons, the flat heads of these rather add than otherwise to its stately and majestic appearance. After flowering, the bulb dies; but perpetuates itself by throwing up one or more offsets. The one in flower here is an offset from one which flowered in a greenhouse in 1872, and, in the autumn of that year, was planted out of doors in the situation it now occupies. In 1873, it increased considerably in size, and made two more offsets; in 1874, three more were made, and the others much increased in size, so that, when growth commenced this season, there were six bulbs of different ages, the oldest of which (three years) is now in flower as above described. There will be, I hope, two bulbs sufficiently strong to flower next year, and, of course, others following for succeeding years. Do the bulbs ever flower in less than three years?"

THE KITCHEN GARDEN.

SLUGS AND POTATOES.

When looking over our Potato crop here, a few days ago, my attention was arrested by the shrivelled appearance of the haulm of many of the plants, which, only a day or two previously, was in the most robust health. As these shrivelled plants occurred only in those rows which, for the sake of experiment, I had purposely left unearthed, I was the more curious to ascertain the cause, and, on close examination, this was easily detected; for, at the base of each stem, in a small hole, made by the haulm having been swayed to and fro by the wind, were found about a dozen minute slugs, which had cleverly eaten their way clean round each stem, leaving the hard or central part only intact. On further examination, I observed that nearly every plant was either partially or wholly eaten round in those rows which had not been earthed while in the adjoining and intermediate rows, which had been earthed, they had not been attacked. The varieties most injured were the Red-skinned Flourball and Victoria, and I doubt not, if they had been left only a day or two longer, that every plant would have been destroyed; but a good top dressing of soot and lime prevented any further mischief. I have never before seen slugs attack the Potato in this way to such an extent, nor can I understand why they preferred the lower part of the stem to the younger, or upper part, or even the foliage. In many of the neighbouring cottage gardens I have since discovered the same evil, which had been previously been attributed to other causes, such as wire-worm, blight, and disease. Thomas Challis.

Wilton House, Salisbury.

The Weather and its effects on Vegetation.—Thunderstorms occurred here on the 2nd, 9th, and 11th of June. At noon, on the latter day, there was a terrific hail-storm, which completely covered the ground an inch in depth. Some of the hailstones were of immense size, measuring five-eighth of an inch in diameter. The tender foliage of trees, shrubs, and vegetables, was much injured; and vegetation generally suffered a severe check. The highest temperature in the shade (81°) occurred on the 3rd, and the lowest (36°) on the 22nd and 27th. The early part of the mouth was exceedingly fine; and the middle part very stormy and boisterous, the temperature changeable, and, at times, unusually low. These climatic conditions being very conducive to the growth of Potato disease, it has, I am sorry to say, made its appearance unusually early, and has, within the last few days, spread very rapidly among the early varieties.—Thomas Challis, *The Gardens, Wilton House, Salisbury.*

Disease among American Potatoes.—I have some American Late Rose Potatoes which have been completely destroyed by precisely the same disease as that which has occurred at Chiswick and other places; but, strange to say, about one-third of the plants of the same kind scattered throughout the plot have shown no sign of disease, but, on the contrary, have grown most luxuriantly and have produced a good crop of tubers. I find that many others in this neighbourhood, who were supplied with seed from the same source as myself, have suffered in a similar manner. During the late and present wet and cool weather the ordinary Potato disease (Peronospora infestans) has made its appearance here.—John D. Mitchell, *Falmouth.*

Potatoes in Yorkshire.—All kinds of Potatoes are looking well in the North Riding of Yorkshire. New kidneys, which are well supplied, are selling in the market at from 1s. to 2s. per stone. I have not yet heard of any disease; a few gaps in the rows may be found here and there where sets have not germinated; and, when examined, these sets have been found to be quite full of wire worms. Some of the tops are also found to be slightly curled; but, since rain fell on the 22nd of June, the appearance of the curled tops has much improved. I have neither seen nor heard of the so-called new disease amongst Potatoes here; but I find the most gaps amongst Brownell's Beauty, one of the new American varieties. My Snowflakes are looking very well; of 1 lb. of seed cut up into thirty-four sets, thirty-one are growing well. I examined those sets that failed, and found them to be eaten up with wireworm. I took up some of Headley's Nonpareil on the 26th of June; this is generally thought to be a late winter Potato, but I find it to be an early variety.—Henry Taylor, *Fencote, near Bedale, Yorks.*

Sutton's Snowball Cauliflower.—I sowed this on the 4th of March last, planted it out to stand on the 20th of April, and cut the first head on the 16th of June, ten days after the hand-light Cauliflowers came into use. The heads measure from 3 to 5 inches across, are white as curds, and perfectly firm, three filling an ordinary vegetable dish. It can be planted 15 inches apart. It is the perfection of what a Cauliflower should be for the table.—R. Gilbert, *Burghley*,

THE GARDEN IN THE HOUSE.

WILD GRASSES FOR BOUQUETS.

JUST at present in meadows and hedge-rows the different varieties of wild Grasses can be obtained in perfection, and they should be much more extensively employed in floral decorations than they are, for not even the most delicate greenhouse Fern will give the same airy look to a vase of flowers that a few spikes of wild Grasses will impart. Some five or six years ago they were first brought into requisition, and, ever since, their use has been steadily increasing. It is a good plan to lay in a store of the different varieties of Grasses at the present time for use during the winter months when they cannot be obtained in the fields. In cutting them for this purpose each variety should be tied in separate bunches, and care should be taken that they are not bruised together, for, if this is the case, when the bunch is opened each spike will be found to have dried in its crushed position, and its form will thus be quite spoilt, and its value for decorative purposes destroyed. All Grasses should be dried in an upright position, particularly those of a drooping character. Oats while still green, are also very pretty in large arrangements, especially ears of Black Oats, which I have but very seldom seen used. This variety forms a charming contrast to ordinary Grasses and Sedges, and I have constantly used it myself, when I have been able to obtain it. The great value of Grasses is, that in addition to giving a light appearance to a vase, a large plume of handsome Grasses and Sedges enables you to dispense with many flowers. To some this may be no object, but to many it must be a matter for consideration. My attention has been directed to the usefulness of the bloom of the Ribbon Grass for mingling with flowers, and I can bear testimony to its utility for this purpose. The bloom has a silver-like lustre in some stages of its growth, whilst in others it assumes a rosy-pink tint, which is equally pretty. In the trumpet of a March vase, which has been dressed with pink and white flowers, a few spikes of the Ribbon Grass bloom help to carry up the colour with charming effect into the green of the other Grasses, flowers, and foliage employed in its decoration. For a trumpet vase the graceful drooping Oat Grass is best adapted. The common Horse-Tail is also not to be passed over, as it, like the Grasses, forms a valuable addition to floral decorations, and may be found growing in moist places in country lanes, or on sandbanks by the sea. In Devonshire it is to be found in most lanes, while about Hythe, in Kent, it is very plentiful along the coast. In tazzas, the flowers are arranged first, and the Grasses afterwards; in trumpets, the opposite rule obtains—the Grasses are first arranged, and then the flowers.

A. HASSARD.

Wild Grasses and Border Flowers.

Flowers and Leaves and their Seasons.—The always interesting "Daily Rural Life" correspondent of "Moore's Rural" records changes that occurred in his garden analagous to some that took place in our own. "Whatever," he says, "may have been the cause, the fact is apparent that some of our earliest spring flowers are blooming with the early summer, and the old lines of demarcation are either rubbed out or have become very tortuous. For instance, the Chinese Wistarias have heretofore been considered as among the earliest blooming of the climbing shrubs, flowering before the appearance of the leaves, but my oldest and largest plant, which reaches the very top of a Sassafras tree, and spreading out over its branches, has just come into bloom; hundreds of its long lilac-coloured racemes swing among the green leaves and young shoots of the plant producing them. There were no flowers in advance of the leaves this spring, consequently we will have to qualify the description generally given to this plant, inserting 'usually' blooming before the leaves appear, instead of the positive assertion that it does so always. Then here are Daphnes, Hawthorns, Lilacs, Spiræas, and Silver-bell trees all in bloom at the same time, without the least regard to the well-established rules of propriety, to say nothing of what has been said of them by botanical authorities. Even our native Umbrella Magnolia has taken to 'sporting,' this spring—the flowers appearing before the leaves, instead of after as they generally do. Dr. Gray, in describing this species, says:—'A low tree, with leaves on the end of the flowering branches crowded in an umbrella-like circle, smooth and green on both sides, obovate-lanceolate, pointed at both ends, 1 to 2 feet long, surrounding a large white flower in spring.' The above is true generally, but this spring was an exception, for there were no 'long leaves surrounding' the flowers on the specimen tree in my grounds, although it bloomed as freely as ever. I might cite scores of instances of the wide departure from the general rule of budding and blooming of different kinds of plants during the present season, but those already noticed are sufficient to show that even staid 'Dame Nature' has 'sportive' habits."

Flowers on the Table.—Leigh Hunt says:—"Set flowers on your table—a whole nosegay if you can get it, or but two or three, or a single flower, a Rose, a Pink, a Daisy. Bring a few Daisies or Buttercups from your last field walk, and keep them alive in a little water; preserve but a bunch of Clover, or a handful of flowering Grass—one of the most elegant of Nature's productions—and you have something on your table that reminds you of the country, and gives you a link with the poets that have done it most honour. Put a Rose, or a Lily, or a Violet on your table, and you and Lord Bacon have a custom in common, for this great and wise man was in the habit of having flowers in season set upon his table, we believe, morning, noon, and night—that is to say, at all meals, seeing that they were growing all day. Now here is a fashion that will last you for ever, if you please—never change with silks, and velvets, and silver forks, nor be dependent on caprice, or some fine gentleman or lady who have nothing but caprice and changes to give them importance and a sensation. Flowers on morning tables are especially suited to them. They look like the happy wakening of the creation; they bring the breath of Nature into your room; they seem the representative and embodiment of the very smiles of your home, the graces of good morrow."

THE FRUIT GARDEN.

FORCING STRAWBERRIES.

In forcing Strawberries care must be taken that the runners are healthy, and from plants that are full of bloom, particularly in the case of Keen's Seedling, which is still a good early sort, but I prefer Black Prince for the first crop, if it is required to be ripe by the 20th of March. For this purpose, a few good runners should be planted out in August or as early as possible, in a sheltered, sunny spot, having good soil, every attention, as regards watering and cleanliness, being devoted to them. In the following spring, as soon as the bloom buds have risen clear of the crown, they must all be pinched off; and, if any plants should prove barren, which is often the case with Keen's Seedling, they should be pulled out. Pinching out the blooms causes the runners to be both earlier and stronger, and this assures a good crop of fine early fruit. In layering the runners, some clean 3-inch pots should be filled with good strong fibrous loam, in a rough state, without any drainage. Then take a dibber, made from an old spade handle, sharpen the point, and make as many holes as are wanted round the Strawberry plants. Enlarge the holes sufficiently to take in the 3-inch pots up to the rim, when the hole will be deep enough below the pot for the water to drain into it. This also keeps the roots from growing into the soil after passing through the drainage holes. When a pot has been placed in each hole, insert in the centre of the pot a good healthy runner, secured with a small hooked peg, made from an old Birch besom. Keeping the soil moist causes them to root more quickly. Nothing weakens young plants more than allowing them to become too dry in those small pots, which is often the case. Examine the pots frequently by lifting them out of the hole, to see if the young roots are coming freely through the bottom of the pot, if so, they must be shifted as soon as possible, for if they get matted round the pot, it gives a check and causes delay. In re-potting, the fruiting pots should be thoroughly clean and well-drained. Five-inch pots are large enough for the earliest crop, and 6-inch for the later; if a larger size be used they take longer to fill with roots, and the crown not getting ripe when it should, weak flower-stems, which are few in number, are caused. The soil for potting should be a strong fibrous loam from the top of an old pasture, and ought to be stacked up about three months before it is used. To every four barrow-loads put a barrowful of thoroughly rotten manure, mixed well together, and, in potting, make the soil quite solid, as the plants root better, hold less water, and keep sweet longer by this method, which is essential where fine fruit with good flavour is aimed at. Three-quarters of an inch in depth should be left unfilled for watering, so that the ball gets thoroughly soaked through every time it is watered. When potting is finished, place the plants on a bed of rough ashes or clinkers, 6 inches deep, in an open sunny situation, far enough apart to allow the foliage plenty of room. Fill in between the pots with fine ashes up to the rim; this keeps the roots at a uniform temperature, and they require less water. Give a good syringing over head every fine day as the sun declines, and pay every attention to watering at the roots. When the pots are tolerably well filled with roots, a little manure-water, fresh made from cow or sheep-dung, should be given once or twice a week, and when the plants are in fruit mix a little guano with it, or soot. As soon as the hoar-frosts make their appearance, the syringing over head must be dispensed with, and the plants must be kept drier at the roots, to ripen them up well. As the frosts get harder, and the growth finished, cover the pots over with fine dry ashes, keep the crowns clear, and allowing them to remain till wanted for forcing, unless cool frames are available, which is not often the case in the autumn. If they remain outside, it is well to have some Fern, or loose litter to throw over them during severe frosts, uncovering them at every opportunity, if it be only for an hour or two. When commencing to force, the third week in December is a good time to put the first batch in, and these should be ripe about the third week in March, as it takes from eleven to thirteen weeks from the start to the finish, according as the weather is favourable or not. Prepare a pit, with a bed of leaves or tan, into which to plunge the plants; the heat should be about 70° or 75°, not more. Plenty of air should be given to keep the atmosphere dry and sweet, as nothing is more injurious than a close, stagnant atmosphere. The night temperature should be about 50°, with an increase of 5° in the day, according to the weather. As soon as the flower-buds make their appearance, give a rise of 5°, and no more—too high a temperature weakens the buds. When the trusses begin to rise freely from the crowns, the plants should be placed tolerably near the glass, where they can have plenty of air, and should be subjected to a night temperature of about 60°, with a rise of 8° or 10° in the day. Fire-heat should be cautiously used till the fruit has set, and it is better to allow the heat to fall a few degrees on a cool night than to force the plants too rapidly. Light and fresh air are indispensable in early forcing, and as the blooms begin to expand a drier atmosphere must be maintained, only sufficient water at the roots being given to keep the plants in active growth. Any stagnant water about the roots is injurious to the plants, and, when in bloom, it is well to rub the hand across the flowers twice a day, as, when, fully expanded, this distributes the pollen, and causes the fruit to swell more equally. A little air should be left on all night, but avoid draughts; and, when the fruits are fairly set, they will stand without injury a temperature of 60° to 65° at night, with a rise of 15° or 20° with sun-heat. Water must also be more liberally supplied, a weak liquid manure being used alternately with it. When the fruit fairly commences to swell, all of it, but about ten or a dozen of the best, must be thinned off each plant; for there is no gain in leaving too many to ripen, at a sacrifice of both size and quality. As soon as the fruit begins to colour, withhold manure, and use nothing but clear water, with the chill taken off it. Any leaves that shade the fruit should be pegged on one side, to give colour and flavour to the fruit; and, as the season advances, and we get to the end of April, a more airy and cooler atmosphere will give higher colour and better flavour. Suitable kinds for forcing are Black Prince for March; if not required earlier than April, Vicomtesse Hericart de Thury is both hardy and prolific, and forces well; Keen's Seedling is a good early sort, but requires care in taking the runners from fruitful plants; Eclipse, President, Sir Harry, and Sir Charles Napier, are all good forcers and prolific, the latter is beautiful in colour, but rather acid. For the latest crop, there is nothing superior to the British Queen.

Waterdale, St. Helens. James Smith.

THE BEST TIME TO THIN PEACHES.

I have almost invariably noticed that those Peach trees which set the thinnest crop of fruit generally stoned the greatest quantity proportionately—that is, they seldom dropped any portion of their crop at the critical period; and, as might be expected, the fruit was generally larger and finer; and this happens, so far as I have observed, with trees carrying quite as heavy a crop as another equally vigorous, but upon which the fruit has been thinned down from a thick-set to the same standard. Now, if these results are constant—and I think they are—it follows that early and complete thinning would be the wisest practice to ensure a fine crop. I apprehend the general practice still is to thin partially when the fruit is about the size of Peas; again before stoning commences; and, finally, when the stoning process is completed. A healthy Peach tree will set an enormous quantity of fruit under favourable circumstances; and we cannot doubt that if all that sets, or a great part of it, is left for two or three weeks, it must be at a considerable sacrifice of vigour, which is lost for the season, so far as the crop is concerned. It is generally acknowledged that the mere setting process is not accomplished without an expenditure of energy; and, if so, the sustentation of an over-abundant set afterwards must be still more debilitating—even more so, perhaps, than we can readily estimate or gauge. Considering the liability of Peach trees to drop their buds under glass, it is not advisable, generally, to thin the buds previous to flowering—unless, as happens with some varieties and in some soils, the flower-buds occupy the place of the leaf-buds also. When this is the case, then all the side-buds of each group should be removed without scruple, as the centre-bud—the flower-bud proper—is always the best and the firmest seated. The Noblesse Peach is exceedingly apt to make more flower-buds than leaf-buds; and, but for the few of the latter which generally break at the base of the shoot, and the one at the point, it would often be difficult to lay in a stock of young wood—consequently it is seldom safe to shorten the shoots of this variety at pruning-time. We have not ventured, as yet, to thin completely at the beginning, but we thin very freely as soon as the fruits are fairly set. There are always some fruit set but imperfectly, which the experienced eye can tell at once will never come to anything. These are the smallest which lag behind in swelling from the beginning, and should be removed first and at once, and afterwards the promising fruit should be thinned out to 4 or 5 inches asunder on the shoot. This will leave ample to reckon upon for a crop; they may even be reduced again before stoning, when the leading fruit can be distinguished. A writer on the Peach in these pages (the "Gardener") once stated that he left some of all sizes at thinning, and by this means secured a longer succession of fruit from the same tree—a statement which, if true, is contrary to my experience. The only results I ever noticed of leaving the smallest fruit at the beginning, was that the fruit was proportionately small at the ending without prolonging the succession in the least. The idea is erroneous, for the small fruit sets at the same time as the large—the inferiority in size being due to a lack of vigour, instead of later setting. J. S.

FRUITS: SWEET OR ACID—WHICH SHALL WE GROW?

This is a question which I put seriously to housekeepers and horticulturists. The matter, as far as puddings, pies, and even preserves go, is very much in their own hands. We may either grow or buy our sugar at will. On the former plan we have our sugar free, on the latter at wholesale or retail prices. Habit has established the custom of growing sour fruits—I use the term relatively—for culinary purposes; these fruits have to be sweetened before they are eatable; the more acid the fruit the more sugar is used, and *vice versâ*. It follows that it might be possible to use fruit for culinary purposes so sweet as to enable us wholly to dispense with sugar. Prejudice stands ready to protest that by so doing we sacrifice flavour. How so? unless, indeed, we are prepared to contend that Beet and Cane sugar, which are those mostly employed to sweeten our other fruits, are better, sweeter, higher-flavoured, than the sugar secreted in Apples, Pears, Plums, or other fruits. But such an argument proves too much, and really asserts that our artificial compoundings are better than Nature's more perfect mixture. We certainly do not act so in regard to our dessert fruit. In them we prefer sugar of Nature's manufacture and storing, else as far as mere texture goes, many kitchen Apples would, with plentiful additions of sugar, be equal to sweeter dessert fruit. But custom and common sense are in accord in reference to our dessert fruits, and seemingly divorced in regard to our cooked fruits. Assuredly it is not a very reasonable proceeding to grow sour fruit, in order to pile sugar over it both before and after cooking, when fruits sweet enough for almost every palate might be grown with equal ease, on the same area, and to the same or greater weight. The argument of superior flavour has no foundation in reason, and will not stand the test of trial. No Apples will make a finer pudding or pie than the Alfriston, Ribston Pippin, or Cox's Orange Pippin. On the contrary, the two latter have an aroma that the best kitchen Apples cannot reach. True, they may be too sweet for some palates. To those who prefer acid Apples without sugar we have nothing to say; they will, of course, continue to eat them. But those who sweeten their tarts of Lord Suffield, Norfolk Beefing, Gloria Mundi, and Wellington up to the Ribston Pippin standard of sweetness, had far better reduce their grocer's bill by using the sugar at first-hand and free of cost, in their dessert Apples. Already this advice is being acted upon in regard to Pears for stewing, and for puddings and pies. Some, however, almost need to be told that Pears make better puddings and pies than Apples, as well as that the best dessert Pears, just before they are fit for table, are best for both, as well as for stewing. Let anyone try Marie Louise, Glou Morceau, Beurré Diel, Duchesse d'Angoulême, Vicar of Winkfield, Louise Bonne of Jersey, or Brown or Golden Beurré, and he would not care to eat any more of Black Worcester, or Catillac, or even of Uvedale's St. Germain, unless it might be the latter in March or April, after even the Easter Beurré — one of the finest dessert Pears in existence, as well as our very best for stewing, and puddings and pies—had gone out of season. The same principle is applicable to Plums. Why cook Bullaces, Damsons, or even Victorias, when Gages in abundance, Jefferson's and Golden Drops are filled with sugar and the most delicious juices ready to hand? Much sugar might be saved in preserving fruit by growing only, or mostly, the sweetest. As things have been managed in the past, the sweetest varieties have been ticketed insipid, And why? Because all fruits of the same species have generally been sugared alike—pound for pound, or three-quarters of a pound of sugar to a pound of fruit, according to the receipt of the books on house-keeping, and this whether it contained 10 or 20 per cent. of saccharine matter, with as much immutability as the old Medio-Persian law, or that of three minutes to the boiling of an egg—big or little. Hence, of course, the best, that is, the sweetest, fruits were sugared to excess and made insipid, and many inferior fruits were and are under-sugared, and run into rottenness and acetous fermentation. Why, even among Apricots, there are wide differences in the proportions of saccharine matter, and I do not hesitate to affirm that the Kaisha ought not to have so much sugar as the Moorpark, and that this again is sweeter than the Breda. Of course there is a much wider range among Plums, and indeed a considerable difference is allowed between Gages and other varieties, although the matter has not been considered with that thoroughness and minuteness in regard to the different varieties that its importance demands. Coming down to bush fruits, what differences in the per-centage of sugar we find in the different varieties of Gooseberries, Currants, and Raspberries! Yet they are all cooked and preserved on the principle of pound per pound, or so much per pound, all round. Strawberries are often totally ruined by an excess or a deficiency of sugar, arising from an utter disregard of the per-centage already existing in different varieties. This not only varies with the sorts, but likewise with the seasons, and some general means should be devised for testing, with sufficient approximation to exactness, the per-centage of sugar before the fruit is preserved. But my object now is to advocate the cultivation of the sweetest varieties of fruits chiefly or only, and thus to secure the sugar in our fruit-puddings and pies, and as much as practicable of it in our preserves, free of cost.—D. T. Fish, in the "Florist."

The best Stock for the Morello Cherry.—This useful Cherry succeeds best with me when worked on the Cerasus mahaleb; in fact, there is no comparison, both as regards health and productiveness, between those worked on this stock and those on the ordinary Cherry stock. Here we have several trees of it on both kinds of stock, and although all are treated exactly alike, the most casual observer could pick out those on the Cerasus stock by their luxuriant appearance and the magnificent crops which they bear; they also appear to escape the attacks of black fly, which is so great an enemy to the Cherry tree. I am aware that in soils naturally suited to the Cherry, such as those where good brick earth abounds, few trees are more healthy or productive than this Cherry. I have seen trees of it in Middlesex which, although they had received no attention whatever for years, for health and productiveness were unsurpassed; but favourable conditions of soil, such as existed in this instance, cannot always be commanded. In order to overcome the difficulty, therefore, of bad soil, I have found nothing so successful as getting this Cherry worked on the stock just named. For preserving in brandy the Morello is without a rival, and for the length of time during which it may be kept in good condition for culinary purposes it has no equal. It will succeed in almost any aspect, and by having a tree or two of it on a southern exposure, and others in the coldest situation at command, its bearing season may be greatly prolonged.—James Groom, *Henham Hall, Wangford.*

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Destroying the Pear Tree Slug.—Some years ago I had some trouble with this insect, on a west wall furnished with large trees of Marie Louise, Passe Colmar, Brown Beurré, and other Pears. I ultimately got rid of it, and at the same time much improved the health of the trees, by deluging them with strong soot and lime water, applied forcibly by means of the garden-engine, at pretty frequent intervals.—E. Hobday, *Ramsey Abbey.*

Alpine Strawberries from Runners best.—Some state that these should always be raised from seed. I have raised many in that way, and have found myself disappointed, in having a portion of them produce inferior fruit to those from which the seeds were obtained. Thus I obtained a mixture of good and inferior varieties, a result in no way desirable.—J. M.

Covering Peach Borders.—Mr. Temple, of Blenheim, writing in the "Florist," doubts if the ordinary covering of fermenting material is the right one for Vine and Peach-house borders. He considers a covering of dry litter or Fern the best.

THE FLOWER GARDEN.

NOTES ON HARDY FLOWERS.

SOME of your readers, as fond of hardy flowers as myself, might be glad to see a few remarks on those which have done well with me in Oxfordshire. Alstrœmeria aurea is now very showy and a vigorous plant. The others have not yet flowered this season. The yellow Aconitum lycoctonum is a strong and distinct species, and not at all particular as to soil or situation. Achillea aurea is, I think, the best, the flowers being of a deep yellow. Adonis vernalis was very fine when in bloom, the individual flowers being 4 inches across. It likes a somewhat moist soil. Agrostemma flos Jovis is worth growing, not being rampant, and only growing about 12 or 18 inches in height, and the flowers a good crimson. I do not know whether Agathæa cœlestis is hardy on rock-work; it certainly is not so in a border. Aquilegia chrysantha and Armeria cephalotes alba are good border plants—the former a clear yellow with good spurs, and the latter a pure white. Aubrietia Hendersonii I think the best; the flowers are of good size and colour. Aphyllanthes monspeliensis is a rather pretty little plant, about a foot high, with rush-like leaves and blue flowers. Bocconia cordata is a very fine and stately plant when isolated on the turf, and is now in full flower, although the chief beauty is in its leaves and habit. With me it is now about 10 feet high, and almost too rampant for borders. Brodiæa coccinea is well worth growing, and is a rather uncommon bulbous plant, with nodding tubular flowers of a good crimson; the segments recurved, of a pea-green colour. B. grandiflora grows about 9 inches high, the flowers a blue-purple, in umbels, and also deserves a place in all collections of hardy bulbs. Camassia esculenta, another handsome bulbous plant with violet-coloured flowers, should never be omitted. Catananche cœrulea is of almost too straggling a habit, although the individual flowers are pretty. Of Campanulas we have a great variety here. Perhaps the best of the taller-growing varieties are C. grandiflora, C. persicifolia and its white variety, Van Houttei, and C. pyramidalis; and of the smaller varieties, C. carpatica (both blue and white), C. nobilis (both the reddish-purple and the white), C. pulla, C. Raineri, C. garganica, C. pumila, C. p. alba, C. Hendersonii, and the old C. turbinata. Chelidonium majus fl. pl. is a showy and vigorous plant, but is far surpassed by C. japonicum, with its large yellow flowers, and which grows about 18 inches high. Chelone obliqua is seldom seen in gardens, but is quite one of the best of hardy plants, with large purple flowers, in dense terminal spikes. It requires a moist soil, with a good dash of vegetable mould. The Dodecatheons are all good plants, and increase rapidly, if accommodated with some vegetable mould and a half-shady position. Perhaps D. Jeffreyanum is the best, but D. integrifolium runs it hard and is dwarfer. I have not flowered D. splendidum yet, but it comes with a good character. The Doronicums are too rampant for the border, but are fine showy plants for the wild garden. I have one quite dwarf species about 6 inches high, which does for the garden proper, but I do not know its name. It is dwarfer than D. caucasicum. Of the Dracocephalums, D. austriacum and D. argunense are good; the flowers are a fine blue; perhaps C. grandiflorum is the best—but I cannot grow it. It never appears a second year; but, perhaps the difficulty is in getting good plants to start with. The old Dryas octopetala, with white flowers and yellow stamens, is a pretty plant in light and moist soils, and D. Drummondii, with yellow flowers, is a good companion. The Eryngiums are all good, and quite distinct from other hardy plants. I have a plant with smooth entire leaves, sent to me under the name of E. falcatum, but I cannot identify it. E. alpinum and amethystinum are perhaps the best. E. bromeliæfolium is not hardy. It grows with me to 7 or 8 feet, but is never seen a second year. Some of the hardy Geraniums are very handsome plants. G. ibericum and G. platypetalum have made a splendid show this year with their large violet flowers. The old G. striatum is a pretty old border plant, and G. phæum with small, nearly black, flowers, is interesting, though not showy. Here I may mention a near relation, Pelargonium Endlicherianum, perfectly hardy, and with large rose-coloured flowers, which should not be omitted in a collection. The double forms of G. pratense are also worth growing. We have a very fine Gaillardia now in bloom (G. Telemachi) raised, I believe, by Messrs. Henderson, and a hardy plant. It is at present the most showy flower in the borders. Of the Helianthemums, the old H. venustum, with fine red flowers, is good, particularly when associated with the pure white Helianthemum, christened by Messrs. Henderson The Bride, but all are surpassed by H. ocymoides, better known by the name of Cistus algarvensis, which grows to the height of over 2 feet, and is smothered with fine bright yellow flowers of good size, and with a dark purple eye. The Funkias are nearly all good, and are just coming richly into bloom. The larger kinds look best where springing from the turf in the recesses of shrubberies. To secure a full development of leaf and flower, do not grudge them a good loam with plenty of vegetable matter, and they will repay the attention. The Heracleums, of which I have six species in the wild garden, are only fitted for rough places, where they look well even in decay, their leafless skeletons shivering in the breeze. The variegated H. Sphondylium, not being so rampant, might perhaps be used at the back of a wide mixed border. The Heleniums and Helianthuses look well in autumn, and grow vigorously in a wild garden, which perhaps is the place best suited for them. Helianthus orgyalis is a very tall and particularly graceful perennial. It will be all the better for thinning out the superfluous shoots when young, choosing the weakest for that purpose. Do not omit the double Rockets (Hesperis) from the mixed border; both the purple and the white forms (they are deliciously scented), or the single kind from the shrubberies.

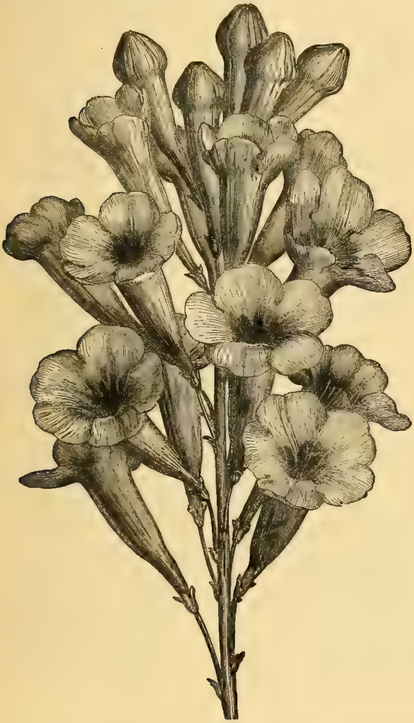
Of the Christmas Roses, the finest, in my opinion, is H. niger maximus, which attains the height of 2 or 2½ feet, and flowers earlier than the other kinds. Jaborosa integrifolia is an uncommon perennial, and deserves a place. Coming from Buenos Ayres, it requires a warm situation, and light well-drained loam. It has large white tubular flowers, and is very sweet-scented. It grows about 1 foot in height, and has been in bloom here for a month past. The different varieties of Liatris will soon be in bloom, and are all showy perennials. L. pycnostachya is the tallest and most vigorous, and L. fluxuosa is a dwarf and handsome kind. Lythrum roseum superbum is one of the handsomest plants now in bloom, with reddish-purple flowers in fine spikes, and grows nearly 6 feet high. It likes moist soil. Of the Linarias there are two fine and large kinds, which form good sized bushes about 4 feet in height. They are L. genistifolia and L. dalmatica. Both have light yellow flowers and glaucous leaves, and will soon be making a good display. L. alpina is a pretty little dwarf plant for rather moist and sandy soil. Of the Linums there are many good. L. flavum and L. arboreum, with golden-yellow flowers are very showy. I find them rather impatient of removal. L. narbonnense is a very graceful kind with blue flowers, and the white variety makes a good companion for it. L. perenne (a native) is pretty. I have L. p. roseum, but it is not worth growing, being simply of a dirty blue colour, and the "rose" entirely absent. Our old friend, Lithospermum prostratum, is seen to great advantage, either prostrate or trained as a pyramid or standard. To do well it requires very sandy soil. I do not think the British L. purpureo-cœruleum worth growing, and I have not L. Gastoni. A very fine plant, and rarely seen in gardens, is the Lobelia Tupa (Tupa Feuillei), about 5 feet high, with red flowers in a terminal spike. We find it quite hardy here (in Oxfordshire) much more so than L. cardinalis, which requires storing in the winter. It should be grown in all collections of hardy plants, and in light and rich soil. The Lupins look very well when in flower, particularly in a wild garden. The blue and white varieties should be grown together, and also a fine reddish-purple kind, which I had from seed. Another little-known but meritorious plant should not be omitted—I mean the Blue Dandelion (Lactuca sonchifolia). It has been covered with sky-blue flowers for a month past, and is now at its best. It is a very free grower, about 18 inches high, with smooth finely-cut leaves. The Lychnis tribe are nearly all good from the old and tall L. chalcedonica to the dwarf and brilliant L. Lagascæ. I do not find the latter survive on the level ground; like the beautiful Convolvulus mauritanicus its place is on the rock-work. L. Haageana is a splendid scarlet. The flesh-coloured varieties, I find, deteriorate very much after once blooming. What a good thing is Modiola geranioides, now in full bloom, with fine rosy-magenta flowers, 1 inch across, like miniature Mallows! It is a tuberous-rooted plant, and quite hardy in the open border. Michauxia campanuloides is, I think, only a biennial, or a very doubtful perennial, at all events. It is, however, very easily raised from seed. OXON.

A Wild Rose Garden.—My notion of a Rose garden, though perchance not original, is certainly not a stereotyped one. The ordinary Rose garden is, as a rule, exceedingly formal —beds or borders, standards, half-standards, and dwarfs, with here and there a few climbing Roses, all kept severely pruned, and everything about them trim and in perfect order. To grow Roses otherwise would be a violation of all rules laid down in Rose books, as to the ways in which Roses should be grown. In a cottage garden, just opposite my residence is a tall Hawthorn, and close to it was planted some years ago a Noisette multiflora Rose. This and the tree have grown together, and now the Rose has mounted up some 12 feet, intermixing with its branches in such a way that all through the latter part of June and during July nothing is visible but a mass of white flowers. This is an illustration of the sort of

Rose growth which I would have; but this cannot, of course, be tolerated in an ordinary garden. In some wood, associated with Fern and useless undergrowth, would I have a garden in which Roses might be grown in this way. First of all I would grub out all timber and underwood, then trench the soil deeply, enclose it with a wire fence, and plant it with a large variety of strong-growing Roses, all on their own bottoms, in long beds, three rows only in each bed, with wide walks between them. Except to keep within bounds any over luxuriant shoot, I would banish the pruning-knife, and permit the plants to grow as wild as Nature would allow them. Perhaps I should not get flowers fit for exhibition, but I should at least have a natural Rose garden.—A. D.

AMPHICOME EMODI.

The genus Amphicome, established by Royle, belongs to the family of Bignoniaceous plants, large numbers of which are grown in gardens, as, for example, Eccremocarpus scaber, Tecoma radicans, and several species of the genus Bignonia, which are so useful for covering walls and arbours. The genus Amphicome comprises but two species, both of which have beautiful foliage and flowers. They are characterised by a campanulated calyx, which, to the number of five, is sharply denticulated and by a long corolla in the form of a funnel, of which the limb forming two lips is divided into five lobes of nearly equal size. Of the five stamens there are only four which are furnished with anthers, of which two are longer than the others. A. Emodi is a more remarkable species than arguta, which was first introduced in 1837, and is indigenous to the Himalayas. A. Emodi was introduced much later; but the size of its flowers, which are of a beautiful rose colour, has enabled it to assume and hold a more prominent position in our gardens than its congener. It is tolerably hardy, and will doubtless live in the open air in most of the southern counties. It is, however, all the better for a little protection in winter. B.



Amphicome Emodi.

A FEAST OF ROSES.

The instability of earthly affairs marks the crazes as visibly as the serious interests and occupations of mankind. It does not console us much to reflect on this truth, when the craze is at its height, and bores us frightfully, because it does not happen to be our own craze, or because our minds are too well disciplined to have one; for it is equally true that it is only a case of replacement. Fashion turns her wheel, and brings up one toy after another, and everybody snatches at the topmost trifle. One day Prince's will be as obsolete as Ranelagh, and Polo as the nobler games of which it is a feeble imitation. A whisper is abroad that people are tiring of collecting china; that "priceless" things are beginning to be priced, and at a surprisingly low figure; that halls and staircases are denuded in many instances of the adornments which, where the fashion is carried out on a small scale, turned them into groves of plates and dishes, and, where it is carried out on the large, into the "Ceramic Art" department of one of those exhibitions which have also ceased to trouble. A happy time may be coming in which Satsuma jars, and even "Bristol" will have been gently deposed from an eminence which has been rather too oppressive, and our friends' houses shall cease to remind us painfully of the difficulties and dangers of a china shop, without the consolatory application of the practical Italian proverb, "Who breaks pays!" Somebody buys the things which, if we are to judge by the lists of "art" sales, everybody is selling, but they will at least be dispersed, and a few decades may be expected to pass before they will come up again, to divide general conversation into enthusiastic silliness on the part of the genuine "fanciers," and organised hypocrisy on the part of the vast majority who neither know nor care anything about "bits," or "fabrics," or "marks," but are mortally afraid of being found out in their ignorance.

The Rose craze has been growing with great velocity, and is commendable. The growers may possibly be tiresome people, but they keep away, from the necessity of the case, and we, who only love and enjoy the beautiful products of their skill and care, are the gainers without any drawback. We associate poetical ideas with them, simple, pastoral notions, disturbed by nothing more prosaic than cotton-wool, tobacco-smoke, and objurgation of the insect tribes which are likewise partial to Roses; but no poetry can be got out of "Christie's" on a muggy day in June, be the "craze" under the hammer ever so historical. The Crystal Palace itself is the natural home of the Rose, the only place in which one is not sorry to see them cut and set primly in boxes. The space, the glass, the greenery, and the constant song of birds are all in keeping; and in the early hours, before the crowd comes, they might have been holding a court, to which a few respectful human beings were admitted to do them distant but heart-felt reverence.

The best way in which to enjoy the Rose show at the Crystal Palace is to look attentively at the catalogue, get well into one's mind which are the prize flowers, and who are the successful growers, to pick up as much information as possible about the latest novelties, to make a mental act of grateful admiration of the skill, industry, care, and taste of the individuals who devote themselves to one of the most charming of pursuits, and then promptly to dismiss the whole matter from one's mind, and devote one's self to thoroughly sensuous enjoyment of the Roses. Of course it is only right to learn their names. When one sees—as the oldest *habitués* saw—the finest display the Crystal Palace has ever made, it is the correct thing to inform one's-self that such and such an one among the dainty darlings is new—a hardly yet sunned gem in the crown of the beautiful earth; but, after a while, it is an interruption to look at their names. There are nearly seventy more competitors than there were last year. The gorgeous deep pink of La France, which seems to spread into the air around the flowers; the golden-yellow and rich bulk of the Maréchal Niel; the intense carnation of the Alfred Colomb; the dusky darkness of the Charles Lefèbvre, with its close-set leaves, like the downy wings of a butterfly or humming-bird—one's learned and painstaking guide is constantly saying, "that is new," or "they have got that colour since last year."

The best Roses, according to scientific rules and the growers' estimation, are not always those which an unlearned visitor, a mere lover of Roses, looks at with most delight; there are mysteries of form and fullness which he knows nothing of, but some of the grandest flowers strike everyone with wonder. Such a Rose is Marie Van Houtte, which is of a reversed bell-shape (like a bell as the ringer jerks it upwards for a good peal of joy), of the Tea order, its leaves of a pale yellow tint, edged with pink; a supremely lovely flower, with the faintest suggestion of a Tulip in it, and a breath of quite peculiar sweetness. The French Roses bear away the palm of beauty, and the learned in them tell us they are more beautiful here than in their own country. The Gloire de Dijon, an "old" Rose—it has glorified many a land beside its own—is, to our taste, still unsurpassed; but the lustrous dark pink of the Marie Cointet runs its tender yellow close, and the Eugène Appert is very near the throne. Never has the Marquise de Castellane—most aptly named of Roses, for it does not disgrace the name it bears—flaunted such beauties in the sun of June as at Sydenham. Visitors clustered round the boxes where these Roses stood amid the Moss, and an eager hum of admiration was always audible near them. Their splendour, and that of La France and Marie Baumann, were freely granted; but if there was one Rose rather than another which excited a strong and openly-expressed desire to steal it (the public sentiments were very impartial in this direction, however, and disdained disguise), it was the well-named Madame Lacharme. One specimen of this kind, of perfect form, of the most delicious colour—a spotless white, deepening towards the heart of it into a faint but distinct pink tint—was set in a box which contained several Roses of various colours. It ought to have stood alone, and to have received a separate homage. Great must have been the proprietorial pride of the exhibitor who showed those beautiful Oxonians in the English seedling class; but it is to be hoped the grower of the lovely Mademoiselle Eugénie Verdier was not within earshot when a critical individual replied to the enthusiastic comments on that triumph of science and skill (by kind permission of Nature) made by a lady beside him: "Well, yes, very pretty; but I like the meaty Roses best, myself." Table decorations, wedding, opera, and button-hole bouquets were displayed in profusion. The exhibition was most creditable, all the combinations were tasteful and elegant, and if the reaction which has set in should banish ceramic monstrosities from dinner-tables and substitute such floral triumphs as these, there will be additional reason for wishing a long life to the Rose craze.—"Spectator."

THE BEDDING PANSIES AT CHISWICK.

In the spring months few hardy flowers are more effective as bedding plants than the race of Pansies known as Bedding Pansies. Their colours are generally rich and decided, while the blooming season of the true bedding sorts is continuous for a considerable period. About ninety varieties have been grown this year at Chiswick, whole beds being devoted to many of them. The following, according to the "Florist," have been selected as the cream of the collection:

Dark Purples.

Mulberry (Dean).—A dwarf compact-growing variety, of spreading and free-flowering habit; the flowers are dark reddish-plum-purple, with very small yellow eye, and they are well displayed. A first-class certificate, awarded by the Floral Committee last year, was confirmed on the occasion of a recent (June 9) critical examination of the collection.

Lothair (Dean).—A novel and attractive variety, having a dwarf compact habit of growth; the flowers are large, deep purple, with small yellow eye, and a broadish bronzy spot just below it on the lower petal; a distinct and rich-looking flower. Awarded a first-class certificate.

Cliveden Purple.—This variety was not in the collection, but it is noticed here as being considered by growers the finest of its colour—a rich plum-purple.

Tyrian Prince (Dean).—A handsome variety, awarded a first-class certificate last year, but this year voted a second-class only; it is of fine compact, but stout-growing, habit; flowers, large, dark velvety mulberry-purple, with small yellow eye.

Blue or Mauve-Purples.

Blue Bell (Dean).—A very showy variety, of compact, spreading, free-blooming habit; flowers, numerous, medium-sized, mauve-purple, with a small yellow eye, pencilled over with dark lines. The individual flowers are inferior, but the effect of the mass of blossoms is good, and it is, moreover, a continuous bloomer. Awarded a first-class certificate last year, which was now confirmed.

Blue Perfection (Westland).—Of compact, free-blooming habit; flowers, medium-sized, of a reddish-mauve; a fine, effective, self-coloured variety, with a general similarity to the foregoing, but more decidedly self-coloured. A first-class certificate was awarded.

Alpha (Dicksons & Co.).—A very compact-growing, vigorous-habited, free-flowering variety; flowers, large, blue-purple, with a reddish flush, the eye yellow, with a bilobed dark spot in front; good.

The Tory (Dicksons & Co.)—A variety of free and vigorous growth, and an abundant and continuous bloomer; flowers, large, deep blue-purple, with white eye, and a bilobed mulberry spot in front of it; good. The first-class certificate already awarded was confirmed.

Dr. Stuart (Stuart).—Of dwarf, compact habit; flowers, mauve-purple, with small yellow eye, surrounded by a narrow dark ring; a neat and pretty flower. Awarded a second-class certificate.

Yellows.

Sovereign (Dicksons & Co.).—Of close-growing habit, dwarf, free, and prolific of blossoms; flowers, moderate in size, bright golden-yellow, with a slightly pencilled eye; very effective. Awarded a first-class certificate.

Bedfont Yellow (Dean).—A free-growing, compact-habited, sort; flowers, large, bright yellow, with a slightly pencilled eye; good. Awarded a first-class certificate.

Dicksons' Golden Gem (Dicksons & Co.).—A variety of dwarf, spreading habit, and a free bloomer; flowers, large, deep yellow, with deeper eye, over which occur dark pencillings; good. Awarded a first-class certificate.

Whites.

White Swan (Dean).—A fine variety, of close-growing, tufted habit; flowers, moderate size, pure white, with slight pencilled eye; of good substance, and very chaste-looking. Awarded a first-class certificate.

Dicksons' Queen (Dicksons & Co.).—A variety of free, compact habit, an abundant bloomer, but rather later than others; flowers, large, white, with yellow eye, and pencilled lines. The first-class certificate awarded last year was confirmed.

Lily-white Tom Thumb (Dean).—A clumsy name for a very useful variety, of free, compact, spreading habit; flowers, white, with yellow eye and dark pencillings; a very fair white, but the flowers occasionally come blotched with blue in hot weather. The first-class certificate awarded last year was confirmed.

Dicksons' Snowflake (Dicksons & Co.)—A moderately vigorous sort, of free-flowering habit; flowers, white, with a yellow eye, marked by a few faint lines. This was awarded a second-class certificate.

Various Colours.

Lilacina (Dean).—A charming variety, of dwarf compact spreading habit, free growing, and very distinct; the flowers are of moderate size; the upper petals are of a reddish-lilac, and the lower ones bluish-lilac, with a yellow eye; an exceedingly pretty and taking flower. Awarded a first-class certificate.

Queen of Lilacs (Dicksons & Co.)—A variety of free bold habit, forming close vigorous tufts; the flowers are reddish-lilac, paler at the edge, very freely produced; a soft neutral colour, novel and effective for grouping. Awarded a first-class certificate.

Novelty (Cocker & Son).—A showy variety, of free-growing habit, but getting rather tall; the flowers are reddish or pucy-purple, with yellow eye, showy; a pleasing variety amongst the self-coloured flowers. Awarded a first-class certificate.

Magpie.—An old but still useful variety, of vigorous habit, and of a hardy constitution; it is striking in appearance, from the strongly-contrasted colouring of its flowers, and an abundant bloomer, but rather tall-growing; the flowers are blackish-mulberry, with a large wedge-shaped spot of white at the tip of each petal; the spotting sometimes runs out, when it becomes self-coloured. Awarded a first-class certificate.

To secure a good bloom of these showy flowers young plants should always be used, these being planted out in autumn or very early spring, according as the situation and soil may be favourable or otherwise. Where they are apt to die off in winter early spring planting should be adopted, the plants being wintered in a frame, and the sashes removed on all possible occasions. A top-dressing of light rich soil, administered after the first flush of bloom is over, is very beneficial.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Water Lily Insects.—Will you kindly examine the leaves of Water Lilies sent, and inform me what has injured them?—G. Hutchinson, *Draycott Lodge, Fulham.* [They have been attacked by the larvæ of a small gnat fly belonging to the genus Chironomus, which seems unusually abundant this year, as we have received similar enquiries from other quarters.—A. M.]

Phlox Drummondi splendens grandiflora.—This is a vigorous growing continental variety, the flowers of which are extra large, of great substance, and perfect in form, the colour being rich rosy-crimson with a distinct white eye. For pot culture it will prove most useful. One of the most effective of all bedding kinds is the variety of Phlox Drummondi called Cardinal, the flowers of which are large, round, and deep crimson, a colour not yet found in any bedding Pelargonium.—A. D.

The Lizard Orchis (O. hircina).—This singular and rare British plant is now flowering in the York nurseries. It is planted on a detached portion of the rock-work, which has been constructed specially for the growth of the species of hardy Orchises which thrive in a compost consisting of very stiff loam and broken pieces of limestone. The flowers of O. hircina are green and white, with purple spots at the base of the lip. The peculiar feature in this flower is the long strap-shaped and twisted lip, which is frequently 2 inches long. Another pretty little Orchis, Nigritella suaveolens, was flowering not far from the above, with small dense spikes of rose-coloured flowers, which are most deliciously fragrant.—R. P.

THE ALAMEDA OF MEXICO.

The large cities of Central and Southern America—even those that became at the commencement of this century the capitals of independent republics and empires—did not avail themselves as fully as they might have done of the vegetable wealth that lay at their doors. In Spanish America, only two or three capitals are provided with public gardens that are worthy of them, and, at the same time, worthy of the wealth of vegetation that Nature has lavished upon the surrounding country. The city of Mexico has three public promenades—the Paseo de Bucaroli, La Viga, and the Alameda. Of these, the last-named may be considered the most ancient. It is not exactly a garden, but an enclosed park, containing several gardens, some of which would not disgrace European cities. Established in 1592, this enclosure was planted with choice trees. At the present day, this beautiful park is entirely surrounded by a wall. The avenues are well kept, and the gardens separated from each other by wooden lattice-work. At the four angles of the park are entrance gates, as well as in the middle of the parallelogram by which it is enclosed. The Taxodiums are a remarkable feature; still, however, the gardens are by no means what they may be made in such a glorious climate whenever the cessation of wars and revolutions permit of the growth of horticulture in this natural garden-land.

View in the Alameda of Mexico.

New Chinese Ferns.—In the last issue of the "Journal of Botany" Mr. J. G. Baker describes some important new Ferns gathered in Central China. They include Pteris inequalis, Nephrodium Sheareri, N. regulare, N. puberulum, Polypodium assimile, P. Sheareri, and P. Lewisii.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Late Peas.—As a means of retarding, in some measure, the last sowings of late Peas so as to have them far on in the autumn, the points of the shoots may be nipped out at the spot where they show the first flowers; this will induce them to throw out growths at the joints lower down, and it also makes them more bushy, as they will, thus treated, push two or three shoots in the place of one, and will delay their cropping from a fortnight to three weeks. As to the quantity produced by Peas so treated it does not appear to have any influence, either one way or the other. The greatest enemy late Peas have is mildew; for, if this once makes its appearance, their cropping powers are soon over. If, as advised at the time of sowing, the most open airy situations were selected for these late crops, and the rows were placed far apart, the chief measures for avoiding this troublesome parasite have been taken; but, if they are ever allowed to want water, mildew is certain to follow. If, therefore, the weather is dry, give a copious watering once a week, so as thoroughly to soak their roots, and mulch the ground with half rotten manure for a couple of feet on either side of the rows.

Turnips.—A good breadth of Turnips should now be sown, as, after this time, the beetle is not usually so destructive as earlier in the season. Ground that has been cleared of early Potatoes, Peas, or other crops, will now be available for these. It will not be necessary to dig it previous to putting in the seed, unless it is of a very strong adhesive nature, nothing being gained by doing so; in fact, when the land is light, it does absolute harm, by inducing the growth of leaves rather than that of the bulb. Previous to sowing, hoe the ground a couple of inches deep, rake off and remove any weeds that may exist, and sow the seeds in rows a foot apart, putting in enough to allow for loss from the depredations of birds or the fly. Before sowing dress the seed with red lead; if this is properly done, according to the directions already given, it will secure them from molestation from all birds except the greenfinch, which seems to defy any dressing that can be given to seeds of the collective family of Brassicas. It is a well-known fact that seed-bearing severely taxes the energies of any plant, although all are not alike affected by it, but it is simply a waste of strength to allow anything to seed when the seed is useless or not required. For this reason Asparagus in private gardens should have the seeds stripped off as soon as they are large enough to take hold of. At first this may appear a tedious process, but a little practice will enable anyone to clear a good breadth in a few hours; do not allow them to get large or full-grown before they are taken off; for, in that case, the injury they do is almost complete. Go over the beds frequently to remove all weeds, which, if allowed to grow so much, impoverish the soil, and this crop, more than most others, cannot bear this.

Planting Cottager's Kale.—A good space should now be planted with the useful Cottager's Kale, as this is a most excellent vegetable, and so hardy that it will stand even our severest winters. It is much better to have a good breadth of it than to grow several varieties of similar Winter Greens, that are not equal to it in any way. Give the plants 20 inches space in the rows, and allow as much between each row.

Vegetable Marrows and Endive.—Thin out Vegetable Marrows sufficiently, not allowing them to get too much crowded, and, if the situation is at all exposed, secure the shoots so that they will not get blown about by the wind. See that they are well supplied with water. Wanting this, the plants will not bear to the end of the season. Make a sowing of the Batavian Endive, and also of the Green-curled; these will come in as an [autumn supply, as the plants from this sowing will not be so liable to run to seed as those sown earlier. Do not put the seed in too thickly, as nearly all of them vegetate, and are not so liable, as many, to suffer from the ravages of birds or insects.

Pits and Frames.—Cucumbers that have been bearing from the commencement of the season, and are now falling off a little, should have some of their shoots thinned out, and a little fresh soil added to the surface of the bed. In this the shoots will strike root from the joints, where required, by pegging them down. If the plants are clear from insects thus treated, they will again push out growth and fruit freely.

Melons.—The late-planted crops will now be growing fast, and must receive every attention in thinning out superfluous shoots, stopping those retained as soon as they reach the sides of the frame; this will cause them to throw out bearing wood. Keep up the necessary warmth in the beds by slight linings; these will not require now to be so heavy as earlier in the season when the weather was cooler; but with late Melons in frames the beds must not be allowed to get cold, or the plants make little progress and the summer is too far advanced before the crop comes to maturity. As the preceding crops gradually ripen, withhold water so as to impart the requisite flavour to the fruit, but do not let the soil become so dry as is sometimes done, and thus stop the full development of the fruit. Endeavour by the use of the syringe on such as are swelling off the crop, to keep the foliage free from insects, for where the leaves are scanty and injured by red spider or other pests the fruit, as a natural consequence, will be small and deficient in flavour. Woodlice are a great nuisance where they exist in large numbers in Melon pits or frames and before the fruit begins to ripen measures should be taken for their destruction. They are not at all particular as to their food, slices of raw or boiled Potatoes, or pieces of Apple placed in the bottom of a few small pots and covered with hay or Moss will attract them in numbers, while by looking over them every morning and destroying they can be kept down so as to little inconvenience. It is only where such precautions are neglected during the advancing stages of the crop that woodlice exist in such number as to do serious mischief.

Houses—Stove.—More air will now be required by plants in the stoves than earlier in the season, when the growth was young and tender, and liable to injury if much external air came in contact with the partially developed foliage; but, in its admission, always be guided more by the state of the weather than the time of the year. In our changeable climate, we often, even in the height of summer, experience cold days, when, if a considerable volume of air is admitted, it reduces the temperature, and checks growth; even when the weather is hot, and air can be given in abundance, it should be taken off sufficiently early in the afternoon, whilst the sun has yet power on the glass; by this means the temperature of the house will rise very considerably, and the growth of the plants be kept up until the wood is well matured. The numerous insects to which stove plants are subject, such as mealy-bug, scale, and thrips, at this season increase apace. Amateurs who are so unfortunate as to have mealy-bug to contend with, have an unceasing task before them so long as a trace of the pest exists upon their plants. Later in the autumn, when growth is completed in most things, is the best time to make a determined onslaught on the insect. Its destruction will be rendered much easier if it is kept well down during the summer; for, if once it is allowed to get to such a head as is sometimes seen, where it not only half smothers the plants, but gets into crevices in the wood and brick-work, it is difficult to deal with. There are so many prescriptions for the destruction of this and similar insects, all in their turn by some pronounced infallible, that it is a wonder any are left alive. Many of the insecticides are recommended to be laid on with a camel's-hair brush or a sponge; this might answer if only an odd plant or two was affected, or if there was an unlimited amount of time at disposal for this kind of work; but this is seldom the case, and some readier means must therefore be resorted to, the best of which will be found to wash the plants with Fowler's insecticide, for scale; at this time in the season hard-wooded plants will bear it at a strength of 5 oz. to the gallon, syringing it on, at a temperature of 90°, so as to reach every part. For bug, which is harder to kill than brown scale, Abyssinian mixture is the best, using it at from 5 to 6 oz. to the gallon, according to the nature of the leaves of the subjects upon which it is used. Where this insect is kept under during the summer months, an attempt in the autumn to completely destroy it is much more likely to be successful. Such kinds of Gloxinias as are considered desirable to increase, should now be propagated. The leaves being fully matured, are now in a much better condition to form roots than earlier in the season when they were soft; in varieties, of which there are a sufficient number of leaves, the stalks of those used should be shortened to about an inch below the leaf; three or four of these should be placed round the sides of a 6-inch pot, sufficiently drained and filled with a mixture of two parts of loam to one of sand, the cuttings being put in so deep as to cover the stalk and about half-an-inch of the base of the leaf. Where leaves for propagation of any particular sort are scarce, several roots may be had from a single leaf, by laying them down on the surface of the soil in a seed-pan filled with the compost, as above; the mid-rib of the leaf must be cut through in five or six places, and laid with the under-side downwards, a small stone, just large enough to keep the severed part of the mid-rib at the point where cut, touching the soil, being put over each place where it is thus cut. In this way bulbs will be formed, but these will not, individually, be near so large as when the stalks are inserted, and each leaf employed to make a single root.

Flower Garden and Pleasure Grounds.

Dahlias, Hollyhocks, and all other tall growing herbaceous plants, should be carefully staked and tied up before they become broken and disfigured by high winds. Pinks, Picotees, Cloves, and Carnations should also have similar attention, while trailing plants of all kinds, such as Verbenas and Petunias, should be pegged down. The numerous varieties of Ivy-leaved Pelargoniums are found to make excellent bedding plants, and to succeed admirably on light soils during dry seasons, when Verbenas and Calceolarias frequently prove failures. Remove all dead and decaying blooms from Roses; also gross shoots and suckers from the stocks, should any such be produced, and in order to secure an abundant autumnal bloom, cut a portion of the strong young shoots tolerably close back, and give the heads a thorough washing with the garden engine or a powerful syringe, in order to clear them from all impurities. When this has been done, give the plants a good top-dressing of half rotten dung, and a soaking with rather strong manure-water about once a week during the present and succeeding months, should the weather be at all dry; treated in this manner, the plants will probably flower as abundantly during the early part of September as they did in June. It is, however, necessary to guard against the attacks of insects of various kinds, and also mildew, which so frequently impair the beauty of the second display of bloom. The best and, perhaps, the only remedy for mildew is sulphur, which, in some of its forms, should be used the moment the Fungus makes its appearance; let the foliage be well dusted with it, or syringe the plants with Ewing's infallible composition, a wineglassful of which renders a gallon of water sufficiently strong for the purpose. This should be done during a calm evening, and one or two applications will seldom fail to arrest the further progress of this pest. Now is the best time to bud Roses on the Briar stock, an operation which should, if possible, be completed during this month, or early in the next, the end of which, however, will be sufficiently early for budding upon the Manetti. Now is also the proper time to increase Carnations and Pinks. The latter will strike freely under hand-glasses in a compost formed of sifted leaf-soil and sand. But Carnations, Picotees, and Cloves are generally propagated by means of layers. In layering, remove a portion of the surface-soil surrounding the stems of the plants about to be operated upon, and surround the same by a portion of prepared soil, which may consist of about two-thirds of good friable loam and one-third sifted leaf mould, with the addition of a little sharp sand. Remove all weakly shoots from the stools, and, after selecting those intended to be layered, strip the leaves from a portion of the stems next the ground; then, with a thin-bladed, sharp knife split up a portion of the stem from which the leaves have been cleared, inserting the knife a little below one of the joints, and turn the top of the layers upwards, so as to throw the heel or tongue towards the soil, in which it should be securely fixed by means of a peg. When the layers of each stool have been thus secured, place as much fresh soil round the stool and about the layers as will keep them firmly in their places; and give all a good watering through a fine-rosed watering-pot to settle the soil—this must be frequently repeated should the weather become dry. In order to prevent birds from scraping away the soil from the layers (which they are very likely to do, in their search for worms, ants' eggs, &c.), cover the surface with small flints or stones, which will also have the effect of preventing undue evaporation. Where ornamental screens or hedges, consisting of various materials, such as Sweet Briar, so valuable on account of its delicious perfume; common or evergreen Privet, a plant of quick growth, and exceedingly useful for this purpose; tree Box, common Yew, &c., are used for separating certain portions of the dressed ground from others, they should now be trimmed or clipped. The common Yew (Taxus baccata) is amongst the best of plants for forming ornamental evergreen hedges; it is, however, of somewhat slow growth, but at the same time it has the advantage of remaining long in a healthy condition, and of bearing clipping and cutting better perhaps than any other plant. There are also many Coniferous trees of rapid growth, which will bear clipping well, and which can soon be formed into very ornamental screens, such as the Cupressus Lawsoniana, Thujopsis borealis, Thuja Lobbii, various Retinosporas, &c.; and wherever hedges or divisional lines of these plants exist the present is the most suitable time to cut or trim them. Single specimens of such plants as have been mentioned are also frequently used with good effect in geometrically-designed flower gardens, and these may also now receive whatever trimming they may require. The Irish Yew (Taxus fastigiata) is well suited for forming lines or avenues in connection with formally designed gardens; it naturally assumes a pyramidal habit of growth, which, with slight assistance, it maintains; and, if on specimens of it, 10 or 12 feet in height, the golden-striped variety of the common Yew are grafted, a striking effect is produced. Acer Negundo variegatum contrasts well with the sombre-foliaged Coniferous trees and dark-foliaged shrubs of different kinds. Wherever plants with large leaves are used as specimens in the flower garden, or in forming screens, &c., such as the Sweet Bay, Laurustinus, Portugal Laurel, Hollies, &c., any cutting or trimming found necessary in their case should not be performed with the garden shears but with the knife, in order to avoid mutilating their foliage.—P. Grieve, *Culford, Bury St. Edmunds.*

Indoor Fruit Department.

Vines.—Look over lately inarched Vines and see that the ties are not interfering with the expansion of the wood; do not remove the matting entirely, although the union may seem complete, as the slightest pressure will cause a separation. It is a safe plan to put a single round of matting above and below the joining, and let it remain all the season. Where Lady Downes are stoning, and show the slightest indication to scald, keep the interior of the Vinery in which they are as cool at all times as a greenhouse until the stoning process is over, and not 3 per cent. of the berries will be injured. This scalding, as it is termed, consists in the most prominent berries becoming soft and brown on one side, as if they had been burnt with a hot iron; sometimes a single berry here and there throughout the bunch is affected, and, in more severe cases, the whole side of the bunch is destroyed. Many a bunch which promised well to begin with has through this been reduced to almost nothing in a short time. A burning sunshine is the chief cause of the disease; for, in dull sunless weather, nothing of the kind takes place. When sufficient air cannot be admitted a temporary shading is often placed over the glass outside to keep down the temperature inside. Midsummer Grapes are colouring fast now, and an inch or two more opening may be left on the ventilators all night with advantage; on mild, wet, dull days, the front ventilators should not be kept entirely shut. Be careful to keep the Vines, from which all the fruit has been cut, perfectly clean from every form of insect. The best eyes from which to raise next year's Vines are those selected from the earliest-ripened wood, and this fact in itself should be sufficient inducement to ensure attention.

Pines.—Give little or no air to newly-potted suckers until roots are formed; shade to keep the midday temperature from 80° to 85°, or 90° at the highest; see that the bottom-heat does not rise above 90°.. Stocks of Smooth's, Rothschild's, Prince Albert's, and others from which one or two suckers have been taken should have their lower leaves removed without disturbing the root, the top leaves being cut to 4 inches long, and the whole taken out of the pot and laid in close together with the leaves above and the root under the plunging material. Thus treated a bottom-heat of 90° will induce many suckers, which would otherwise remain dormant, to push up; some of the finest suckers are reared in this manner. The roots should be kept moderately moist, and, when watering, pour the water in the centre of the leaves so as to soften the buds.—J. Muir.

TREES AND SHRUBS.

REVISION OF THE GENUS CEANOTHUS*

Some of the species of this exclusively American genus are well marked and readily distinguished, but the larger number are defined with difficulty, and the value of the specific distinctions must still be considered in some cases as uncertain. It would be easy to increase the number of nominal species, and, on the other hand, with apparent reason, to considerably reduce them. But while endeavouring to give a nearly uniform value to the several characters, taking at the same time into consideration our imperfect knowledge of some of the forms, it has seemed best to retain, as probably distinct, some which seemingly run together, and at the same time to avoid as far as possible proposing new species. The following arrangement is as satisfactory as it could be made with present material and information.

Section 1.—Euceanothus.

Leaves all alternate, three-nerved or pinnately veined, glandular-toothed or entire; fruit not crested.

* Leaves three-nerved from the base.

+ Erect shrubs, the branches not rigidly divaricate nor spiny; inflorescence thyrsoid; leaves usually large, serrate except in (5).

a. Low (1 to 3 feet high); flowers white, or sometimes light blue in (5).

1. **C. americanus**, Linn.—More or less villous-pubescent; leaves thin, obvate or oblong-ovate, 1½ to 2½ inches long, on short petioles 2 to 6 lines long; peduncles elongated.—From the Atlantic to Winnipeg Valley, Iowa, and Texas.

2. **C. ovatus**, Desf.—Nearly glabrous or somewhat pubescent; leaves narrowly oval or elliptic-lanceolate, 1 to 2 inches long; peduncles usually short; otherwise like the last, into which it seems to pass.—Range the same.

3. **C. sanguineus**, Pursh. (C. Oreganus, Nutt.)—Becoming glabrous or nearly so; leaves thin, ovate, 1 to 4 inches long, on slender petioles, 6 to 15 lines long; peduncles very short; older branches reddish.—From North-western Montana to Washington Terrisory. The specimens of Nuttall referred here in "Torrey and Gray's Flora" belong to the preceding species.

4. **C. velutinus**, Dougl.—Stout, usually glabrous; leaves coriaceous, broadly ovate or elliptical, 1½ to 3 inches long, resinous and shining above, sometimes velvety beneath, glandular-serrulate; petioles stout, 6 lines long; peduncles usually short.—Abundant from Colorado to the Columbia and Northern Caliornia.

5. **C. integerrimus**, Hook. and Arn.—Glabrous, or soon becoming so, rarely pubescent; branches, terete, usually warty; leaves, thin, bright green, ovate to ovate-oblong, 1 to 3 inches long, entire, or very rarely slightly glandular-serrulate, on slender petioles 2 to 6 lines long; thyrse often large and open, terminating the slender branches, or axillary and rather shortly peduncled, mostly white-flowered.—Frequent in the mountains from Central California to the Columbia River. This will include C. californicus and nevadensis of Kellogg.

Var. ? parviflorus.—Of very slender habit, wholly glabrous; leaves much smaller, about half an inch long, short-petioled; flowers, light blue, in rather short simple racemes.—In the Sierra Nevada from the Yosemite Valley northward. Possibly distinct, but intermediate forms occur. It is 51 Bridges. 1,628 Brewer, 3,880 and 4,870 Bolander, 68 and 68 *a* Torrey, and was also collected by Bigelow and by Dr. Gray.

b. Tall shrubs or small trees, 6 to 15 feet high; flowers, bright blue; leaves, oblong to oblong-ovate, rather thick.

6. **C. thyrsiflorus**, Esch.—Sub-glabrous; branches, strongly-angled; leaves, usually smooth and shining above, canescent beneath, glandular-serrulate, 1 to 1½ inches long; flowers, in dense sub-compound racemes, terminating the usually elongated and somewhat leafy peduncles.—In the Coast Range, California, from Monterey to Humboldt County, and popularly known as the "California Lilac."

Var. ? macrothyrus, Torrey in Bot. Wilkes' Explor. Exped., 263.—This is described as having terete branches; leaves. 1 to

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* Read by Mr. Sereno Watson, March 9th, 1875, before the American Academy of Arts and Siences.

2½ inches long, grayish tomentose underneath, and somewhat silky-villous on the prominent veins, entire, on petioles 3 to 5 lines long; flowers, in elongated, uninterrupted, somewhat leafy panicles. It was found on the banks of the Umpqua, Oregon, and is probably distinct.

7. C. azureus, Desf.—Pubescent; leaves, densely rusty-tomentose beneath, smoothish above, 1 to 2½ inches long; thyrse, more open.—Mountains of Mexico from Tepic to Guatemala.

++ Low, the branches not rigidly divaricate nor spiny; flowers, in short simple racemes or pedunculate clusters; leaves, small..

a. Eastern species: flowers, white.

8. C. microphyllus, Michx.—Erect, nearly glabrous; branches, numerous, slender, leafy, yellowish; leaves, thick, very small, 1 to 2 lines long, fascicled, oblong-elliptic to obovate, entire or sparingly toothed, on very short petioles; flowers, in small terminal clusters.—Pine forests of Georgia and Florida.

9. C. serpyllifolius, Nutt.—Decumbent, glabrate; branches, slender, brownish; leaves, less rigid and not fascicled, 3 to 6 lines long, oblong, serrulate, somewhat hairy beneath; flowers, in small clusters or slender axillary peduncles.—Southern Georgia.

b. Western species; flowers, blue.

10. C. dentatus, Nutt.—Erect, hirsutely pubescent, rarely nearly glabrous; leaves, ¼ to 1 inch long, usually small and fascicled, obovate to oblong-elliptic or lanceolate, acute at both ends or obtuse at the apex, glandular-serrate, the margin becoming strongly undulate or revolute; flowers, in small roundish clusters, on naked terminal peduncles about an inch long; fruit, resinously coated and somewhat triangular, the valves being obscurely costate.—On dry hills in the Coast Range, from Monterey to Mendocino; Douglas, Bigelow, and Brewer (n. 643, 984, and 2,374). The larger-leaved form (2,392 Bolander) is C. Lobbianus, Hook., and will also be the C. diversifolius of Kellogg, if any opinion can be formed from his description. The smaller leaves are apparently feather-veined, and often more or less resinous.

11. C. decumbens.—Slender, trailing, hirsutely pubescent with spreading hairs; leaves, rather thin, flat, ½ to 1½ inches long, elliptic-oblong, somewhat cuneate at base, obtuse or acutish, glandular serrate, the greenish glands usually stipitate; flowers, in short, dense, shortly pedunculate racemes, about half an inch long or less.—Frequent in the mountains of Central California, from the Mariposa Grove northward; collected by Fremont (n. 357), Bigelow (S. sorediatus of "Whipple's Report"), Stillman, Brewer (n. 1,624), Bolander (n. 6,331), and Torrey (n. 69).

+++ Erect shrubs, the branches usually rigid, divaricate, or spinose; flowers, in simple racemes or clusters; leaves, rather small.

a. Rarely or never spinose; leaves glandularly serrulate; flowers, mostly blue; racemose.

12. C. hirsutus, Nutt. (C. oliganthus, Nutt.)—Silky-pubescent with soft sub-appressed or spreading hairs, or sometimes hirsute, the branches rather rigid and said to be sometimes spinose; leaves, ovate to oblong-ovate, usually sub-cordate or rounded at base and acute at apex, ½ to 1½ inches long, not smooth adove; flowers, blue, in simple axillary and terminal racemes, 1 to 3 inches long, or rarely thyrsoid; fruit unknown.—Dry hills about Santa Barbara and in the Santa Susanna Mountains; Nuttall, Wallace, Brewer (n. 214, 289, 297, 298).

Var.? glaber (C. sorediatus var. glaber, Watson in King's Rep. 5.51.)—Glabrous throughout or nearly so; leaves, sometimes entire: flowers, white.—East Humboldt Mountains, Nevada; Watson (n. 212).

13. C. sorediatus, Hook.—Nearly glabrous, the inflorescence pubescent; leaves, smooth above, more or less tomentose beneath or rarely nearly glabrous, silky on the veins, oblong-ovate, ½ to 1½ inches long, sub-cordate or rounded, or often acutish at base, acute or obtuse at the apex; flowers, blue, in shortly peduncled simple racemes, ½ to 2 inches long; fruit unknown.—From San Diego to the Sacramento; Douglas, Bigelow (S. incanus of Whipple's Report), Bridges (n. 52), Brewer (n. 286, 1,105), and Bolander (n. 4,558)—the latter a form with small leaves densely white-tomentose beneath.

b. Branches, mostly spinose, greyish; leaves, subcoriaceous, usually entire; flowers, mostly white, racemose.

14. C. divaricatus, Nutt.—Nearly glabrous; leaves, oblong-ovate to ovate, ⅓ to 1¼ inches long, rounded at base, acute or obtuse above, not tomentose beneath; flowers, light blue or white, in sub-simple often elongated racemes 1 to 4 inches long.—California, from San Diego northward; Douglas, Nuttall, Coulter (n. 122), Wallace, Bigelow (var. eglandulosus and C. integerrimus in part, of Whipple's Report), Parry, Cleveland. Also from the "Snake Country," collected by Tolmie.

15. C. incanus, Hook.—Leaves, hoary beneath, with a very minute tomentum, broadly ovate to elliptic, ¾ to 2 inches long, cuneate to cordate at base, acutish or obtuse at apex; flowers, in short racemes; fruit, over 2 lines in diameter, resinously warty.—Santa Cruz to Lake County, California; "a large straggling shrub on the banks of creeks." Collected by Douglas, Brewer (n. 2,663), Bolander (*m*), Kellogg and Harford (n. 126), and Dr. Gray.

16. C. cordulatus, Kellogg, Proc. Calif. Acad. 2. 124, f. 39.—Hirsutely pubescent, with short erect or spreading hairs; leaves, oval-elliptic, ½ to 1¼ inches long, cuneate to sub-cordate at base, usually rounded and sometimes serrate at the apex, the serratures scarcely glandular; flowers, in short simple racemes, 1 inch long or less; fruit, smaller, not resinously dotted.—In the Sierra Nevada, from the Yosemite Valley northward; "low, flat-topped and much spreading, known as 'Snow bush.'" Collected by Brewer (n. 1,630, 1,926), Bolander (n. 4,892), Bridges (n. 46), Gray and Lemmon.

17. C. Fendleri, Gray.—Silky, pubescent; leaves, narrowly oblong to elliptic, 4 to 12 lines long, usually small, somewhat narrowed and cuneate at base, obtuse or acute above; flowers, in short terminal racemes.—In the Rocky Mountains from Colorado to New Mexico.

c. Spinose; leaves, serrate; flowers in small sessile clusters. Mexican.

18. C. buxifolius, Willd.—Nearly glabrous; branches, slender; leaves, rather thin, elliptic, ½ inch long or less, hairy on the veins beneath, sharply serrate; flowers, in axillary clusters, the colour uncertain.—Mountains of Central and North-western Mexico.

19. C. depressus, Benth.—Stout and very rigid, tomentose; leaves, thick, densely tomentose beneath, elliptical, ½ to ¾ inch long, mostly rounded at each end, glandular-serrulate; flowers in mostly terminal clusters, colour uncertain.—Central Mexico.

* * Leaves, pinnately veined. (Forms of C. dentatus might be referred to this group.)

20. C. spinosus, Nutt.—Becoming a small tree, 20 to 30 feet high, branchlets, rigid and somewhat spiny, glabrous or nearly so; leaves, sub-coriaceous, entire, oblong, 9 to 15 lines long, obtuse or retuse, sub-cuneate at base, on slender petioles, 2 to 4 lines long; flowers, deep blue, in a thyrse or in simple racemes, very fragrant; fruit, 2½ to 3 lines in diameter, resinously coated.—From Santa Barbara to Los Angeles, commonly known as "Redwood;" Nuttall, Parry, Brewer (n. 56, 74, 255, 287).

21. C. papillosus, Torr. & Gray.—More or less subhispidly villous or tomentose, 4 to 6 feet high; leaves, glandularly serrulate, the upper surface glandular-papillose, narrowly oblong, obtuse at each end, 1 to 2 inches long, on slender petioles; flowers, blue, in close clusters or short racemes, terminating slender naked peduncles; fruit, 1½ lines broad, not resinous.—Coast Range, from Monterey to San Francisco; Douglas, Bolander (*n*), Dr. Gray.

22. C. floribundus, Hook., Bot. Mag. t. 4,806.—Pilose.scabrouse leaves, small, 3 to 4 lines long, oblong, acute, glandularly denticulat; and undulate, shortly petioled; flowers, blue, in dense globose clusters sessile at the ends of the short branchlets.—Known only from the figure and description in the "Botanical Magazine;" raised from Californian seeds, and closely related to C. dentatus.

23. C. Veitchianus, Hook., Bot. Mag., t. 5,127.—Glabrous nearly throughout; leaves, thick, obvate-cuneate, rounded at the apex; glandular-serrate, smooth and shining above, minutely tomentose beneath between the veinlets, 6 to 9 lines long, on short stout petioles; flowers, bright blue, in dense crowded clusters at the ends of the leafy branches.—Likewise known only from figures and descriptions of specimens cultivated in foreign gardens.

Section 2.—Cerastes.

Leaves, mostly opposite, 1-ribbed, with numerous straight parallel veins, very thick and coriaceous, spinosely toothed or entire; flowers in sessile or shortly pedunculate axillary clusters; fruit, larger, with three hornlike or warty prominences below the summit. Rigidly branched or rarely spiny shrubs, with small leaves; stipules mostly swollen and warty.

24. C. crassifolius, Torr.—Erect, 4 to 12 feet high, the young branchlets white with a villous tomentum; leaves, ovate-oblong, ½ to 1 inch long, obtuse or retuse, more or less tomentose beneath, rarely entire and revolutely margined, the petioles very thick; flowers, light blue or white, in dense very shortly peduncled clusters.—From Mendocino County to San Diego; Bigelow, Parry, Wallace, Brewer (n. 295), Bolander (n. 4,713), and Kellogg.

25. C. cuneatus, Nutt.—Erect, 3 to 12 feet high, less tomentose or nearly smooth; leaves, cuneate-obovate or oblong, rounded or retuse above, on rather slender petioles, entire or very rarely few-toothed; flowers, white or occasionally light blue, in rather loose clusters.—From the Columbia River to Santa Barbara.

26. C. Greggii, Gray.—Closely resembling the last, but more tomentose, and the leaves not cuneate at base; 5 feet high.—From Northern Arizona to New Mexico and Northern Mexico; Gregg, Wright, Bigelow (C. cuneatus of Ives's Report), and Bishop.

27. C. rigidus, Nutt.—Erect, 5 feet high, the branchlets tomentose; leaves, 2 to 5 lines long, cuneate-oblong or usually very broadly obovate, often emarginate, few-toothed above, very shortly petioled; flowers, bright blue, in sessile clusters.—About Monterey and Oakland (?), California; Nuttall, Douglas, Coulter (n. 125), and Hartweg (n. 1,680).

28. C. prostratus, Benth.—Prostrate, nearly glabrous; leaves, 3 to 12 lines long, obovate or usually oblong-cuneate, spinose usually only at the apex, on short slender petioles; flowers, bright blue, the clusters on stout peduncles.—Frequent in the mountains from Humboldt County and the Upper Sacramento to Mariposa County; found on both slopes of the Sierra Nevada.

THE INDOOR GARDEN.

VANDA SUAVIS UNDER COOL TREATMENT.

I HAVE sent you a photograph of this plant, chiefly for the purpose of illustrating that Vandas, as well as other Orchids, may be grown freely and kept in good health though subjected to a very low temperature in winter, compared with what is thought to be the orthodox one of something between 55° and 65°. The variety of suavis under notice appears to me to be quite different in two respects from any I have seen. It lasts in bloom for a month after all the Vandas which I have are out of flower, and I have another variety of suavis, two varieties of tricolor, and one of insignis, all of which came into flower when it did, and have been out of bloom for fourteen days, while the fellow spike to the one which I sent to the meeting at South Kensington is still fresh. Its other distinctive characteristic is the strength of its flower-stems; this is more remarkable than the number of flowers on the spike, though they are more numerous than ordinary, and the size of the blooms is large and their colours very fine and well marked. I got the plant in the form of a small slip some five years ago, from a gardener near Manchester, who, I think, said he obtained it from Mr. Williams, and stated that it was an imported plant. So much for the individual plant; now for what is more important, the fact that East Indian Orchids will thrive and bloom well when kept in a very low winter temperature. My Orchid-house is only 30 feet long and 10 feet wide, a lean-to against a wall with an east aspect; there is a path down the back, and the plants are grown on a sparred stage, under which two flow and two return pipes pass on their way to and from a Pine stove. In the latter are six rows of pipes for surface heat, and in it I keep my stock of sucker Pines. In consequence of the extent of pipe in this house, and the low temperature at which I keep such plants as Pine suckers not long potted, the pipes are never made very hot, and this keeps the Orchid-house at a very low temperature when the weather is severe. During the winter of 1873-4 it was as low as 45° at night for weeks together, and during the dreadful weather we had last December it seldom was above 40° at daylight, and, through January, 45° was the average night temperature. The plants are kept comparatively dry, are never shaded in winter, and all the shade they have in summer is a little Prussian blue and whitening mixed with milk and laid thinly on the glass with a brush in March or April. The effect of this treatment on the Vandas is that they retain their short, firm, stocky leaves, to the bottom, not one out of a dozen having lost a leaf they ever had; and, instead of hanging down like whips, as their leaves are too commonly seen to do, some of the plants of V. tricolor carry their leaves at right angles with their stems, and support themselves without stakes. The other Orchids are in equally good health, though, in most instances, small specimens, and consist, amongst others, of different sorts of Aërides, Calanthes, Cœlogyne, Lady's-slippers, Dendrobiums, Miltonias, Lycastes, Oncidiums, Pleiones, Saccolabiums, Stanhopeas, and Vandas; among which there are suavis, cœrulea, tricolor, Roxburghii, gigantea, insignis, and others. From my own experience I am quite certain that a high winter temperature is not necessary for even what have been termed "high temperature Orchids," but that, on the contrary, it is injurious, especially when combined with great moisture and thick shading at others seasons of the year with but little ventilation. Orchids are the gems of the vegetable world, and if the impediment to their more general culture—the supposed necessity of strong fire heat—can be removed, a benefit will be conferred on thousands, for they have an interest that can be thoroughly appreciated by all who can admire what is not only beautiful, but singularly instructive. A gentleman, who has had to endure many trials in life, once said to me, "What should I have done but for my Orchids? When heavily pressed with care and grief I always betook myself to the Orchid-house and there found something to take my mind off my trials and do me good," and this is a case by no means singular.

Tweed Vineyard. W. THOMSON.

[The photograph showed a plant unusually vigorous in growth, and bearing two very large spikes of flowers.]

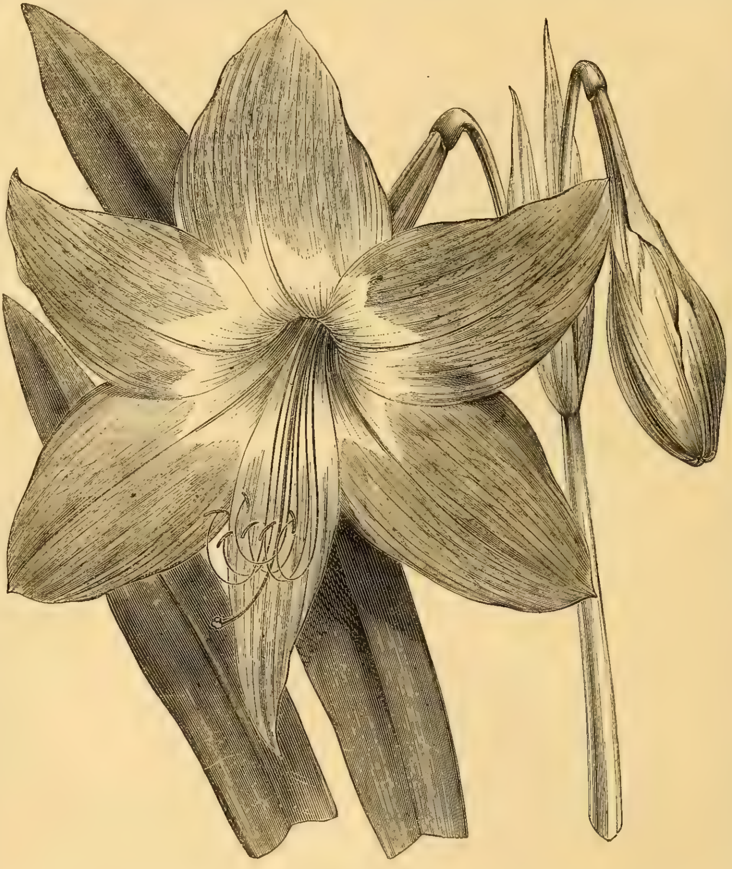
CARNATIONS IN WINTER.

CARNATION cuttings are put in from the middle of November to the middle of February, choice being made of those that are situated along the stems of the flowering shoots. They should be short-jointed, say 3 inches long, and should be inserted in sand in the propagating bench to the number of about 150 to the square foot. As soon as they are rooted they are pricked off into shallow boxes of convenient size and form, and from 3 to 4 inches deep, the plants being placed 2 inches apart each way. They are then deposited in a cool house, as near the glass as possible; and as they advance in growth they should be pinched to induce a bushy habit. By the end of April a piece of ground should be prepared by ploughing manure in deeply, and harrowing and rolling it to make the surface even. All large stones and lumps are then raked off, and it is marked with a marker drawing six lines at once. The plants are thoroughly watered previous to their removal from the boxes, and are planted a foot apart, a man standing on each side of the bed; trampling upon it is thus avoided. An alley 2 feet wide is left between the beds, for cleaning and weeding, and at the end of June the tops are cut off with scissors. Every ten days they should be gone over, and the tops of the shoots that are thought to be about to flower cut off; the plants are thus induced to break from the sides and crown. Some growers fall into the error of shearing them as they would sheep, and this causes the plant to become stunted, after which they do not attain half their proper size in the autumn, and on the size of the plants depends the number of the buds in the winter. About the beginning of October fresh loam or clay, with a fourth part of old manure, to the depth of 5 inches, is placed upon the benches in the greenhouse; the plants are carefully taken up and placed at from 7 to 10 inches apart, according to their size, watered thoroughly with a hose, and shaded from the mid-day sun for eight or ten days. Abundance of air should be given day and night until frost sets in, but upon no account should the plants be allowed to become dry in the bed from the time they are first lifted until they are subjected to fire heat. Should a dry autumn follow, it is possible that no balls will be attached to the plants. This is not of much importance, as the Carnation soon recovers if properly cared for. In fact I have lifted them wholesale without a particle of ball attached, and found no difference in the number of buds produced by the middle of November. The plants commence to be remunerative at Christmas, the flowers then being worth from 6s. to 8s. the hundred. Each plant, up to Feb. 20, should produce from seventy-five to a hundred flowers, and this gives a good profit upon the value of labour, &c., expended. At this time all the benches are cleared of the soil, which will do for potting off; they are then covered over with 1 inch of sand, and are ready for bedding out plants for spring sales. Should flues be used in Carnation culture, it is necessary to syringe the plants freely to prevent red spider, as a drier heat is caused than in the case of hot-water pipes. The temperature of the house at night should be kept at 60°. Cuttings for stock should be taken off regularly, one from each plant being sufficient. The plants should be tied loosely and never planted in old garden soil, or utter failure will be the consequence. The same compost used previously out of doors should not be again used when the plants are under glass; and, when in the open air, wet situations must be avoided. By attending to these rules Carnation culture for the supply of cut flowers can be made as lucrative as any branch of this particular business. It should be added, that the plants should be kept as near the glass as can be conveniently managed. John Howatt.

ORCHIDS AT OAKLEA, FALLOWFIELD.

At few places are Orchids better grown than they are here under the care of Mr. Swan. In the East India-house, I noticed remarkable specimens of Dendrobium Bensoniæ, many plants of which were furnished with twelve flowering bulbs, and each bearing from ten to fifteen flowers; D. thyrsiflorum had seven spikes, while on two plants of D. crystallinum I counted one hundred and thirty blooms. Associated with these were D. Parishii, with fourteen bulbs completely covered with flowers of a brighter and better colour than ordinary; and D. Jamesianum, the blooms on which had been open nearly ten weeks. The little D. senile, on a block suspended against a wall, literally reeking with moisture, was growing luxuriantly, having made several young growths from four to six inches in length, a fact of some importance to such Orchid growers as have hitherto been unsuccessful with this interesting little species; of the distinct and beautiful D. McCarthiæ, there was a well-grown plant with over twenty flowers on it; and some very fine Vandas and Aërides, among which may be mentioned Vanda suavis, beautifully flowered; Aërides crispum, over 3 feet high, with two flower-spikes, one of which was finely branched; A. virens var. Dayanum, bearing four splendid spikes of bloom; the fine old A. odoratum, with seven good spikes in a single break; a splendid plant of the Foxbrush Aërides (A. Fieldingii), bearing a branching spike upwards of 2 feet long; and a plant of Saccolabium curvifolium, furnished with over thirty leaves, and bearing four spikes of lovely orange-scarlet flowers—one of the finest single plants I have ever seen. A good specimen of the showy Thunia Bensoniæ was decorated with good heads of flowers; the dwarf Sobralia macrantha, known as "Wooley's variety," than which few Indian Orchids are more beautiful, was showing many heads of bloom on growths not more than 18 inches high. In this house were also many fine plants of Phalænopsis amabilis, grandiflora, Schilleriana, and Luddemaniana, on the last of which were thirty-four expanded flowers. Among Cypripediums, I noticed fine examples of Stonei, Lowii, villosum, niveum, concolor, barbatum, grandiflorum, and many others remarkably well grown, and, for the most part, blooming profusely. In the house principally devoted to Cattleyas were the lovely C. Mendellii, flowering profusely; also C. lobata, well-flowered; a fine variety of C. Mossiæ, known as aurantiaca, and many others, breaking freely. The Odontoglossum-house contained several fine specimens of O. Alexandræ, in bloom; O. Pescatorei, bearing thirty splendid flowers; and O. Phalænopsis, one plant of which exhibited upwards of twenty fine blooms. Among Oncidiums, the most prominent were O. macranthum, one plant of which had a spike upwards of 7 feet long; a well-grown plant of O. ampliatum majus bore three fine panicles of flowers, which produced a grand effect; and there were, moreover, several well-bloomed plants of the pretty and almost ever-flowering O. cucullatum; a pretty variety of Oncidium leucochilum, called pulchellum, was also unusually attractive, bearing, as it did, a splendid spike of fully-expanded blooms. Here, too, was one of the finest forms of the rare Epidendrum prismatocarpum I ever saw, the ground colour of the sepals and petals being very clear, and the spottings particularly dark and distinct. This plant deserves a place in every collection, not so much from its distinct character as from the extreme length of time during which its blooms last in perfection, in some cases extending over a period of seven or eight weeks. It grows about 12 inches high, producing short bulbs and evergreen foliage. The spikes are produced from the top of the pseudo-bulbs, and bear each about fourteen flowers; it blooms in June and July. These are but a few of the more prominent among the many Orchids at Fallowfield, a collection in which Mr. Leach, the proprietor, takes much interest. W. Skelton.

Tooting Nurseries.



Amaryllis ignescens.

AMARYLLIS IGNESCENS.

Few stove or warm greenhouse bulbs are more attractive when in flower than Amaryllises, and, among them, the plant of which the accompanying is an illustration, is well worth a place. Whether it is in reality a species or a natural hybrid we are unable to state; but whether one or the other, it is a free-blooming and highly decorative plant. It differs from most other kinds of Amaryllis in having a very slender tube. The orange-red perianth segments are white or greenish-white at the base, and being closely imbricated, form a regular and conspicuous white eye. This Amaryllis has been bloomed beautifully by Mr. Wm. Bull, and its showy flowers have the merit of lasting long in perfection. The great secret in growing this, as well as other deciduous Amaryllids in perfection, is to carefully attend to them after they have flowered, so as to induce them to make a vigorous start when again placed under growing circumstances.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

JULY 7TH.

CUT ROSE SHOW.

ROSES were well represented on this occasion; but the main feature of the exhibition was the collection of vegetables staged in competition for Messrs. Carter's £50 Challenge Cup. This prize was awarded to Mr. Gilbert, gardener to the Marquis of Exeter, at Burghley.

First Class Certificates.—These were awarded to the following:

Tuberous-rooted Begonia Coltoni (J. & C. Lee).—This is a free-growing variety of erect habit, having deep green waxy foliage and axillary three-flowerd trusses of brilliant scarlet blossoms. As a decorative plant it is well worthy of attention.

Tuberous-rooted Begonia Rodwellii (J. & C. Lee).—Similar in habit and mode of flowering to the foregoing; flowers bright orange-scarlet.

Clematis Fairy Queen (Cripps).—A strong-growing plant, having fresh green wax-like foliage. The flowers, which are six sepalled, are 8 or even 9 inches in diameter, and the segments broad and paper-white in colour, have a suffused rosy stain down their centres.

Clarkia elegans fl. pl. Salmon Queen (Hardy).—An effective double rosy-salmon-coloured variety of a well-known annual, which, if it can be reproduced true from seed will be invaluable as a decorative border plant.

Clarkia elegans fl. pl. Purple King (Hardy).—Similar to the last, but rich purple in colour.

Strawberry Waltham Seedling (W. Paul).—A large-fruited variety, which has been proved in the gardens at Chiswick, and found to be prolific and very hardy. The fruit is slightly cockscomb-shaped, bright scarlet, and of good flavour.

Gooseberry Early Orleans (R. H. S., Chiswick).—This is one of the earliest of dessert Gooseberries, and also one of the best in flavour. Fruit, medium size, white in colour, and slightly hairy.

Roses.—Of these there was a fair display, several of the principal growers being well represented. Amongst the best blooms staged were the following:—Baroness Rothschild, rosy-blush; General Jacqueminot, glowing crimson-scarlet; Sénateur Vaisse, another well-known deep crimson-rose; Duke of Edinburgh, velvety crimson; Etienne Levet, a fine deep rosy flower; Prince Camille de Rohan, dark velvety crimson; Captain Christy, a variety the outer petals of which are white and the centre bright rosy-salmon; Madlle. Eugénie Verdier, like the last, but deeper in colour; La France, rosy-lilac; Louis Van Houtte, a rich dark velvety scarlet. Associated with these were the new blush-white Madame Lacharme and John Hopper, in excellent condition; Paul Néron, a full fine flower; La Fontaine, a delicate rosy-lilac; Marie Baumann, one of the finest of all the deep fiery-coloured kinds. Among Tea Roses were good flowers of Catherine Mermet, a cream-coloured variety suffused with rose; Belle Lyonaise, creamy-white, with a deep sulphur centre; Madame Van Houtte, clear sulphur, the outer petals suffused with rose, and one of the best of its class; Chamois, a small flower, with a rich buff centre; Souvenir de Paul Néron, a full Gloire de Dijon-shaped bloom of creamy-whiteness, with a salmon centre; Souvenir d'un Ami, a well-known delicate pink Rose; Maréchal Niel, the best among yellows; and Cheshunt Hybrid, a large full deep rosy-lilac flower, with a crimson centre. A large basket of mixed Roses, arranged tastefully with their own leaves on a fresh bed of Moss, was much admired.

Miscellaneous Subjects.—Messrs. Veitch & Sons sent a large and effective pan of the pretty little coral-berried Duckweed (Nertera depressa) profusely covered with orange-scarlet fruit, the size of small Peas. Mr. W. Bull staged a miscellaneous group of plants, including half a dozen varieties of new or rare Lilies, a pan of the bright green Hydrocotyle nitidula, which is very pretty in the form of baskets or edgings in the stove or conservatory. In the same group were also strong plants of Drosera binata and Phalænopsis erubescens, a highly-coloured and beautiful form of P. amabilis. Mr. Dean had Mauve Beauty Stock, in fine condition, and cut blooms of a good strain of large-flowered Campanulas. Mr. Croucher furnished the crimson variety of Masdevallia Harryana bearing fifteen flower spikes; and a beautiful three-blossomed spike of Cattleya gigas came from Mr. J. Douglas, of Loxford Hall. This, the finest variety we have yet seen, measured 8 inches from tip to tip of the petals, the latter being nearly 2½ inches across their widest part. The great white-throated lip was nearly 2½ inches across, and of a rich transparent crimson-purple colour. A cut-spike of the orange-yellow, brown-spotted Lilium Bloomerianum occellatum came from Mrs. Bateman; it resembles L. Humboldti. Messrs. Carter and Co. sent a collection of Coleus, including several well-grown plants of the handsome variety named Duchess of Edinburgh.

Vegetables.—Of these nine collections, all of them above average merit, were staged in competition for Messrs. Carter's Challenge Cup. Mr. Gilbert's collection, to which it was awarded, was neatly set up in shallow trays, and consisted of Peas, Carter's Early Premium Gem, Laxton's Fillbasket, G. F. Wilson, Commander-in-Chief, James's Prolific, and Carter's Blue Peter; American Strap-leaved Turnip, Carter's Fern-leaved Parsley, Hardy's Pedigree Broad Bean, French Beans, Intermediate Carrot, Mona's Pride Potato, crimson Flageolet French Beans, Baily's Selected Cauliflower. White Tripoli Onion, Artichokes, Telegraph Cucumbers, Little Heath Melon, Carter's Mammoth Long-pod Bean, Hedsor Bean, Mushrooms, Asparagus, and Myatt's Covent Garden White Cos Lettuce, all of excellent quality. Mr. Pragnell furnished a group, in which were Peas G. F. Wilson, Carter's Early Premium Gem, James's Prolific Marrow, Carter's Commander-in-Chief, Carter's Blue Peter, French Bean White Advancer, Hardy's Pedigree Windsor Bean, Shallots, Pine-apple Beet, Early Snowball Turnips, Prickly Spinach, Early London Cauliflower, Potatoes Model and Lady Paget, Munro's Little Heath Melon, Wheeler's Imperial Cabbage, Asparagus, Rollisson's Telegraph Cucumber, new Giant White Tripoli Onions, Globe Artichoke, Miller's Selected Carrot, Curled Parsley, Green-striped Marrow, and Carter's Mammoth Long-pod Bean, all well grown. Mr. Arkell also staged a collection, in which we noted excellent Mushrooms and Giant Asparagus. A very complete and well-grown collection of Cos and Cabbage Lettuces was exhibited by Messrs. Carter & Co. Among these, All the Year Round, a compact fresh green variety; Crystal, a green Cabbage kind; White Egg, Paris White Cos, and a frilled, brown-tipped variety, of luxuriant growth, named American Gathering, were conspicuous.

Peas.—Of these, collections were staged in competition for the prizes offered by Messrs. Sutton & Sons and Messrs. Carter & Co. Among them were the following varieties—viz., Giant Emerald Marrow, a variety with pods from 3 to 4 inches in length, and well filled; Best of All, with rather short well-filled pods; Duke of Edinburgh, pale green pods, well filled, from 4 to 5 inches in length; Duchess of Edinburgh, with blue or glaucous-coloured pods, from 3 to 4 inches long, plump and well filled; Sutton's Bijou and Dr. Maclean, both excellent; Commander-in-Chief, a long-podded variety, of a glaucous colour, each pod containing from seven to eight Peas; Supreme and G. F. Wilson, both well-known and excellent varieties; Dr. Hogg, a small-podded but well-filled variety, very prolific and good for early work. The following varieties were staged in competition for Messrs. Carter's silver cup, for which there were six competitors, each staging six dishes each—viz., Superlative, a kind with pods 6 inches in length; Dr. Hogg; Carter's Hundredfold, or Cooks' Favourite, Carter's G. F. Wilson, Commander-in-Chief, and James's Prolific. Laxton's Fillbasket, Duchess of Edinburgh, Bijou, Omega, and William the First were staged in excellent condition. Messrs. Hurst & Sons, of Leadenhall Street, also offered prizes for six varieties of plucked Peas, and also for twelve plants of different varieties. In the class for six dishes of gathered Peas, we noted Supplanter (1874) of fine quality, Superlative (1872), Fillbasket (1873), Laxton's No. 1 (1873), Dr. Hogg (1874), and William the First (1872). In the class for twelve plants (haulm) of different varieties, Supplanter and Dr. Hogg were well represented, the haulm of the former being from 3 to 4 feet high, while that of Dr. Hogg is from 5 to 6 feet in height, and very prolific; Laxton's No. 1 is a fine Pea, about 5 feet in height, and very prolific, the pods being plump and well filled; Omega, a prolific variety, about 4 feet high, bears well-filled pods; Fillbasket, a dwarf variety, from 2 to 3 feet high, was well furnished with well-filled pods; as was also the dwarf and prolific Unique, which varies from 2 to 4 feet in height. Several exhibitions in this class were disqualified, owing to their containing too many plants.

Miscellaneous.—Mr. Dean sent good specimens of a new early Cauliflower, named Early Snowball, and a collection consisting of twelve varieties of Currants came from the Society's garden at Chiswick. Red varieties among these consisted of Red Cherry, a large kind synonymous with La Versaillaise; Large Sweet Red (Large Red), large, but very acid; Knight's Large Red, prolific and very sweet; Red Dutch, large, prolific, and moderately sweet. The best whites consisted of Wilmot's Large White, very large and sweet; White Dutch, large and late, very prolific. Fine dishes of early Gooseberries also came from the Society's gardens, the varieties being Green-gage, smooth green and very sweet; Sulphur, hairy, yellow, and very sweet; Early Orleans, hairy white; Mr. Mills, large oblong, nearly smooth red; Raspberry, a very small, smooth, dark red variety, with a sweet and decided Raspberry flavour. A dish of the bright orange Raspberry-like fruit of the White-washed Bramble (Rubus biflorus) came from the Society's gardens. Two prolific varieties of large Red Gurrants came from Mr. Mills. Mr. Miles, of Wycombe Abbey, sent ripe specimens of Peach Early Beatrice, from the open wall. Mr. Groom, Henham Hall, Suffolk, contributed a new seedling Melon of moderate flavour. Mr. G. Newman, the Elms, Harlington, sent a large new seedling Raspberry, rather acid in flavour. A branch bearing fruit of the Monarch Gooseberry came from Mr. Mills—owing to this Gooseberry having a thick skin it bears packing well, and birds do not destroy it. Mr. Berkeley mentioned that he had received a Cucumber named White Turkey, from Messrs. Vilmorin, and stated that it was formerly used for preserving as a substitute for ginger. Some small white Onions, from Chiswick, were referred to as being good for pickling, although useless otherwise, being bad keepers.

FLORAL DECORATIONS AT TUNBRIDGE WELLS.

The floral decorations at the exhibition of the Tunbridge Wells Horticultural Society, held on the 2nd inst., exhibited a marked improvement upon those of last season, both as regards number of entries and taste in arrangement. In the class for a group of three pieces for table decoration (flowers or fruit), strange to say not one group staged contained fruit. The first prize in this class was awarded to Mrs. Seale, London Road, Sevenoaks, for a charmingly-arranged group of three March vases, decorated with white Water Lilies, scarlet Geraniums, the scarlet spathes of the Flamingo plant, Orchids, scarlet Begonias, pale blue Larkspurs, mixed varieties of Ferns and wild Grasses, while from the trumpets trailed long sprays of Lygodium scandens. The arrangement of the flowers in these stands was much more effective than that which Mrs. Seale exhibited at the Crystal Palace on the 26th of last month; indeed, I quite agree with one of our oldest judges, who, when he saw Mrs. Seale's group of March vases at Tunbridge, said it was the prettiest arrangement he had ever seen. The second prize in this class was awarded to Mrs. G. Smith, Hurstley, for a group of three vases, consisting of trumpets rising out of flat tazzas, the centre piece being the tallest, but had it been about 6 inches taller still it would have been a great improvement. The principal dressing of these stands consisted of blooms of Tacsonia Van Volxemii, sprays of Spiræa and Copper Beech, and light grey tinted foliage furnished by Centaurea and other grey-leaved plants. The third prize in this class was awarded to Mr. John Beech, for an effective group consisting of a March stand for the centre piece, and at each side trumpets rising out of tazzas, all three being dressed with much taste. In the class for a single piece for table decoration the first prize was awarded to Mr. James Bolton for an elegantly-arranged vase, in which Orchids, blue Corn-flowers, Stephanotis, and other flowers and Ferns were charmingly intermixed. The second prize fell to Mrs. Seale for a March vase, very similar to the others exhibited by that lady; and the third prize was awarded to Mr. Fennel for a pretty design; and an extra fourth was awarded to Mr. G. Hubbard. The hand bouquets were good, nearly all exhibited, with few exceptions, being lightly put together, and free from that packed appearance too often to be observed in those exhibited for competition at flower shows; the prizes were awarded (in the order in which the names stand) to Mr. John Staples, Mrs. Staples, Mr. G. Hubbard, and Mrs. Fennel. For button-hole bouquets, which were plentiful, the first prize was awarded to Miss Jane Hollamby, and the second to Mr. R. A. Boesseer. Again, as last season, in the class for arranged groups of wild flowers, there was a keen competition. The first prize was awarded to Miss Cox, the flowers in whose stands consisted of Poppies, Dog Daises, Forget-me-nots, yellow Bird's-foot Trefoil, and Grasses; the second to Mr. Charles Noble, for a large-sized March vase, in which, in addition to wild flowers, Grasses were extensively employed. In the class for a single piece for table decoration (for gardeners only), the prizes went to Mr. Richard Downing and Mr. James Bolton, both of whose arrangements were much admired.

A. Hassard.

EXHIBITION AT ASTON PARK, BIRMINGHAM.

July 1st.

At this exhibition there was an exceptionally fine display of stove and greenhouse plants, including palms, Orchids, Pitcher plants and succulents. The Ferns, too, were the admiration of everybody; and of Fuchsias, Pelargoniums, and similar plants, great quantities were shown; cut flowers, especially Roses, also formed a prominent feature of the exhibition, and there were some interesting examples of table decoration. Fruits and vegetables also were abundant and good. The names of the prize-takers in the different classes will be found in our advertising columns (see p. viii.). Mr. Quilter, at a dinner which was given in connection with this great exhibition, said that he had set his heart on obtaining at least £2,000 for the Midland Institute; but, whether they got £2,000 or £200, he trusted they would not be daunted, but persevere, and endeavour to attain success in the future—a success, be it remarked, which Mr. Quilter well deserves.

The Gum Tree and the Vine Pest.—A writer in the "Temps" mentions a singular effect—namely, that parasites (Phylloxera, &c.), disappear from Vines growing near the Eucalyptus. The experiment, made during several years, and in several Vineyards, had been uniform in its results. It is interesting, in connection with these facts, to observe that the leaves of this plant contain an ethereal oil, of which even half-dried leaves contain 6 per cent., and that this oil, according to Gimbert, is a very powerful antiseptic.

Eating the Enemy.—The pest now devastating so much of Western America forms, it appears from the "American Agriculturist," good food. A few bushels of hoppers were procured, and placed in charge of one of the best caterers in St. Louis to be served. A number of scientific gentlemen were invited by Professor Riley, and a dinner was set forth at which the lively locust formed the sole animal food. Martyrs to science, some may think; but, so far from this being the case, it was a feast that the veriest epicure might envy. Those men of science began with Caloptenus soup—so fine that, against all rules of etiquette, they asked for "more;" then came hopper fritters, vastly better than any oyster fritters, and so on with roast, boiled, fried, and stewed of the same, each better than the last, until the climax of the feast was reached in locusts served with honey. These locusts feed on the fat of the land, and why should we not in turn eat them? It is against our prejudices; but, when we coolly consider the matter, the locust is really no more repulsive than a shrimp, or even an oyster, and that they are really acceptable to the palate these gentlemen enthusiastically declare. In portions of Kansas, Nebraska, Missouri, and elsewhere, people were actually suffering with hunger, with all the while untold quantities of food around them, not only food which will sustain life, but of a palatable kind; and, whatever jocular remarks may be made about this hopper dinner, we think that the gentlemen who partook of it did an eminently good work, and one which in future years may prevent much suffering.

Mr. Wilson's Moss Herbarium.—This has, according to the report of Mr. Carruthers, been acquired by the British Museum. Mr. Wilson (late of Warrington) had devoted his life to the study of Mosses. His herbarium contains the type specimens of the various works of which he was the author, and it abounds in original drawings prepared with singular accuracy, and with manuscript notes of great critical value. It consists of a collection of British Mosses and Jungermanniaceæ, as well as a collection of foreign specimens of these two orders. The British herbarium is accompanied with an extensive correspondence with muscologists, and includes numerous authentic specimens from Dawson Turner, Taylor, Sir W. Hooker, and others. Mr. Wilson's herbarium of foreign Mosses contains type specimens from the herbaria of Montagne, Bruch, Schimper, Angstrom, Mougeot, Zetterstedt, Hooker, Arnott, the Paris Museum, &c.

The Smaller Wintergreen in Sussex.—Mr. F. C. S. Roper, writing in the "Journal of Botany," says—"On a recent visit to a wood between Ashburnham and Battle Abbey, in a road only occasionally used, and covered with turf and Moss, I found on the 1st June, almost concealed by the foliage of other small plants, a few specimens of Pyrola minor, which is an interesting addition to our Sussex flora. Pyrola media is the only species of the genus hitherto reported from the county, and this was found by Mr. Borrer at one station in St. Leonard's Forest, near Horsham, in West Sussex, where Mr. Hemsley states that it is still to be found.

NOTES AND QUESTIONS—VARIOUS.

Tree Carnation, Princess of Wales.—Of this I saw a fine example the other day, in Mr. Perkins's Nursery, at Leamington. It is a canary-coloured self, laced with rose, and is a seedling from Perkins's Prince of Orange. It is a very fine variety.—W. Howard.

Adiantum gracillimum for Bouquets.—I noticed this beautiful form of Maiden-hair Fern used for the first time for decorative purposes the other day at Chislehurst, where Mr. J. Hudson, of Champion Hill, introduced it effectively in a well-made hand bouquet.—W. T. P.

Phlox setacea var. atropurpurea.—This, in my opinion, is the most beautiful of all the Alpine Phloxes, and it has bloomed with me this season most profusely. It is perfectly hardy, a free grower, and continues a long time in bloom. When better known it will doubtless be in great request—J. Whittaker.

Geranium platypetalum.—It is stated (see p. 7) that this is easily increased by means of seed. None of the plants of it, with which I am acquainted, produce seed; a circumstance much to be regretted, as this valuable hardy plant may, one day or other, get lost. Has anyone, besides the writer of the paragraph in question, induced this plant to bear seeds?—Jean Sisley, *Lyons.*

Mesembryanthemum cordifolium variegatum.—Will some of your readers favour me with their experience in raising this plant from seed? With me, it vegetates pretty freely, but the seedlings are so destitute of chlorophyl that, as might be expected, they all die off at an early period. Is that a common result? As seed is generally offered, one can hardly suppose it.—W. T., *Ipswich.*

Hybrid Foxglove.—I have enclosed a leaf and flower of a hybrid Foxglove, a distinct cross between Digitalis grandiflora and D. purpurea, the former being the seed-bearing parent. The robust growth and erect foliage of the produce struck me, from the first, as indicating that D. purpurea had exercised considerable influence on it. The result is a remarkably handsome plant, which is seeding freely.—W. Elliott, *Hitherwood, Sydenham Hill.*

The true York and Lancaster Rose.—My attention has just been called to the article on "Roses," published in The Garden, p. 200, Vol. VI. The writer speaks of R. gallica variegata as York and Lancaster; that is a mistake, as that is Rosa Mundi. I enclose the true York and Lancaster, which is R. damascena. I have grown it many years.—H. T. Ellacombe, *Clyst St. George.* [The blooms sent were those of a sweet-scented, semi-double, white Rose, flaked and mottled with purplish-crimson.]

Mole Crickets and Potatoes.—The enclosed gnaw the stems off the Potatoes here. Some call them American Potato beetles. What are they?—E. Peters, *King's Road House, Guernsey.* [They are mole crickets, of which a full account will be found in our last week's number (see p. 14).]

Onion Enemies.—I enclose you a caterpillar which I have found eating the tops off my onions. It begins at the top and eats the leaves half-way down.—Geo. Picker, *Balderton, near Newark.* [The name of the insect sent is Hadena oleracea. It is a miscellaneous feeder, being found on the Nettle, Elm, Cabbage, and also, it would appear, on the Onion. This is, however, the first time that we have heard of it on the latter.—A. M.]

Carrot Insects.—Our Carrots are suffering from the attacks of an insect, which promises to destroy all in the garden. Some years ago we saved them by applying spirits of tar to the ground before sowing; now it does not seem to do any good. As I believe many suffer in a similar way, probably some one may be able to advise a treatment more efficacious than we have been using.—W. H. M. [The insect that is doing the mischief in this case is the larva of a small fly called Psila rosæ. The means of prevention that have been adopted by our correspondent are those most recommended, and generally found tolerably successful. A strong dressing of quicklime, before sowing, has been found useful, and trenching is perhaps still better.—A. M.]

No. 191.] SATURDAY, JULY 17, 1875. [Vol. VIII.

"This is an art
Which does mend nature: change it rather: but
The Art itself is Nature."—*Shakespeare.*

THE ROSE GARDEN IN SUMMER.

The enthusiastic rosarian at this season strolls among his Roses, looking out for an opening blossom of some new Rose budded last year, and which he had perhaps taken note of when visiting the Rose shows. He casts an eye to the quarter where his Briars are planted, and finds them in a vigorous state, waiting to receive buds of such varieties as he may prefer; but, before he commences to bud, he resolves upon seeing the various Rose exhibitions and selecting the best of the new varieties, in order to make his collection as good as possible. Often, by following this plan, the amateur rosarian is misled, not by the beauty of the Rose so much as by its habit of growth, which may be very weakly, and only fit to be grown as a pot Rose. No Roses are more beautiful than Madame Vidôt, Madame Rivers, Marquise de Mortemarte, Louise Magnan, Virginal, Madlle. Bonnaire, and Madame Noman, all of which are excellent when well grown; but they are all more or less tender, and possess weak constitutions. Many more varieties could be mentioned that are by no means robust, none of which can stand cutting, pruning, and other rough treatment. In order to stand the cutting and pruning necessary to produce good blooms, a Rose requires to be vigorous, and of a strong and hardy constitution. Light-coloured varieties possessing this necessary qualification are scarce; Madame Rothschild, Captain Christie, and Madame Lacharme are the only light-coloured Roses with which I am acquainted that possess really robust and good constitutions. These are very beautiful, and the best in cultivation. Madame Lacharme is nearly white, very little roseate; Captain Christie is a shade darker of a soft flesh colour; and Madame Rothschild is a delicate waxy pink colour. July is generally allowed to be the best month for budding; but this is only on account of buds being easily procured at that time, as the operation of budding may be performed at any time from the middle of May to the end of August. I budded between the 8th of May and the 8th of June this year upwards of two hundred Briars, and very few have failed; they are now looking red and plump. It is a mistaken notion to think that buds inserted so early in the season will start into growth. The insipient buds obtained from the greenhouse in May are quite soft; and the Briar shoot being also soft—in fact, nothing but a mass of sap—every bud inserted is almost sure "to take." The buds must be in a dormant state to commence with, and they will remain in that state until the following spring; but, in order to keep them dormant, the wild growth of the Briar must be suffered to grow. If cut back, there is danger of the buds starting. If you wish to produce Roses the same summer, use pushing buds—*i.e.*, those which have grown about a quarter of an inch; these, when inserted into a vigorous Briar, generally grow away at once, particularly some varieties, such as La France and Duke of Edinburgh. Much has been said and written on the choice of buds, but the truth is, in this country the choice is limited, and much more depends on the free parting of the bark than on the nature of the bud, which may be cut from a growing shoot or a flowering shoot, or one that has just flowered, but has not begun to push. The French use pushing buds with great success in the month of May; they never take the wood out, but merely cut a very small shield with the bud in the centre. I never take the wood out myself, unless it happens that I may have to insert a bud of some particular variety late in August, when the wood is very ripe; in such cases I take the wood out. Briars, planted in the open ground, are not proper stocks for pushing buds, and they should never be used if the scale of the bud has opened so as to show the first incipient leaves. Choose a plump shoot, on which the leaves are large and perfect, and on which the side-buds have not yet begun to grow. Some like to see the buds well developed, and, in order to accomplish this, about a week's time is required. Supposing that you can get buds from your own trees, and you wish to propagate a few particular varieties, but cannot find buds sufficiently developed, it is only necessary to nip off the tops of the shoots wanted; the sap is then directed to the side-buds, and in about seven or eight days your buds will be found plump, and in beautiful order; the top buds will be ready first, and you may have to wait a few days for the remainder. Such is my plan of obtaining buds, and I find it a good one. If buds are obtained from some friend, or a nurseryman, you must insert the best of them. As it is now a common practice for one rosarian to send to another a few buds in exchange for some favourite variety, the post affords a ready medium for such exchanges, as you get them brought to your door fresh and sound. The sender should cut the buds a little before post-time; as soon as he has cut the number of shoots of the variety intended to be sent, he should cut off the leaf-stalks, leaving about half-an-inch; then write on a small piece of paper with a pencil (ink runs) the name of the Rose, roll up the piece of paper, and tie it firmly to the shoot, and place the latter in water. He may have a dozen varieties to send. When all the cuttings are prepared and properly labelled, take them out of the water and tie the whole together with bast, then roll them up in two or three folds of old blotting paper; wet this, and then roll all up in a fold of brown paper. A label, containing the address of the person for whom the cuttings are intended to be despatched should be fastened to the parcel; then comes the weighing and stamping, the stamps being put on the label. No parcel must exceed 12 ounces, the postage of which will be 4d. As soon as the receiver opens the parcel, the cuttings should be thrown into water for about half-an-hour, and in the meantime, half-fill a 6-inch pot with crocks, and fill up to the rim with pure sand. Common river sand is as good as silver sand; prick the cuttings round the side of the pot, about an inch deep; but, previous to doing this, cut a small slice off the end of each shoot, so as to enable it to draw up moisture and nourishment from the sand, which must be kept in a moist state, giving a little water every other day. It is a better plan, and also the practice which I adopt, to take off the paper labels from each shoot, and substitute a wooden tally, placing the shoot behind the tally; the names of the varieties stuck round the pot can then be seen at a glance. Buds kept in this manner improve, and can be safely used after having been kept in sand for ten days—I cannot tell how much longer, never having had occasion to keep them in sand for a greater length of time. Suppose a person should have occasion to go from home for a few days in the budding season, he need not be under any apprehension about his buds perishing, if kept in the manner just described. Care must be taken to place the flower-pot in a cool room, where the sun cannot shine upon the cuttings. Some place their Rose cuttings in water, like bouquets; but that is a practice which cannot be recommended, inasmuch as the buds absorb too much water, and in twenty-four hours turn black and rotten. So much has been written about the manner of inserting the buds—some using a cross cut in the form of the letter T, others a slanting cut at the top of the incision—that practice alone can determine which plan is best. For my part, I never make the cross cut, having in windy weather found that it weakens the shoot, and often there is a breakage at that part. If the amateur cannot insert his bud without the aid of the cross cut, let it be made diagonally. It is not a good plan to release the tie from the buds too soon. Wait until you see the tie biting into the shoot before you release it. When a bud is untied too soon the bark opens, and the bud gets detached. I always leave four shoots upon a Briar, and bud two. In this case, if a bud should fail in "taking," I can insert another into the shoot nearest to the one that has taken. One reason why amateurs fail in getting their buds to take, is the mistake made in pruning in the wild growth of the budded shoots, under an impression that it throws vigour into the buds. On no account must the ends of the Briar shoots be cut after the bud is inserted—the ends of these shoots draw sap up by the bud, and cause it to unite; but cut them off, and the sap is directed to other shoots, and the bud dies for want of nourishment. In using the knife, therefore, for the purpose of getting in amongst the stocks conveniently, let it be borne in mind that the more the shoots are cut back, the more is the flow of sap interfered with, unless they remain for a time untouched, and are allowed to throw out side shoots, by which time the sap will be in full flow again, and the buds will take as quickly as if they had been put in in the first instance, without pruning back the shoots. Let it be impressed strongly on the mind of the amateur that successful budding is only practicable where there is a constant and vigorous flow of sap going on in the shoot to be operated upon. I have seen many young rosarians first insert the buds, and then cut off all the shoots beyond them, in order, as they said, to make the stocks look neat. Of course, the buds did not take; neither was it possible for them to effect a union, when the flow of sap was stopped.

Gun-barrel Budding.

This kind of budding is now much practised by rosarians. In all Rose gardens where the amateur buds his own Roses, there will be found many strong suckers rising from the roots of dead Briars. On account of the severe frosts last winter, many fine, strong suckers may be found at the present time. Take a strong sucker, about 3 feet high, dress all the spines and side shoots off for about 2 feet from the ground, the young wood will be found in about the same state of greenness and ripeness as the side shoot of the Briars which you are budding on the top part of the stock. Instead of waiting till next season, bud at once, just above one of the leaf rings, gun-barrel fashion—put the point of the knife in just above a bud, draw it upwards gently for about an inch in length. Here you have the incision which must receive the bud, at the top of which make your cross cut. Use good, strong, plump buds, which can always be obtained in abundance during August, which is the best time for gun-barrel budding. About two eyes above or below you may insert another bud. There is such an immense flow of sap in these shoots from the root that, when tying up the bud, the sap flows out and runs down the stem. The Briar and the bud are thus both of one age, and may be said to begin the world together. The junction is rapid and complete. All below the inserted buds must be cut away, but all growth above must be suffered to remain until about the middle of November. The reader will naturally ask—"How do you get this sucker up when the head is formed? How do you separate it from the parent stock?" I let it grow for two seasons, after which a good head is formed, and the sucker has become as thick as the thumb. In November, grub up the whole of the old root, and separate the stem from it; it is generally full of fibres, and may be removed to its proper quarters with safety. On this plan, instead of suckers being a nuisance, they may be turned to good account, and your Roses multiplied into dwarfs and standards at pleasure. I generally bud these suckers last, and they have often been of the greatest service to me, when a friend has sent me some buds of very choice new sorts late in the season; all my Briars having been worked, I should have had no stocks to bud them into, had I not preserved these suckers. Gentlemen occupying land can bud into the suckers arising from old roots growing in the hedgerows; but, before inserting the buds, the sucker must be carefully examined at its base, in order to see whether it can be taken up when the head is formed, and removed to the Rose garden.

Treatment of Budded Roses.

As regards the after treatment of budded Briars, under favourable circumstances, a bud generally gets firmly united in about five or six weeks, and if the growth beyond the bud is not cut in, the bud generally remains in a dormant condition. Some few buds it is impossible to keep in a dormant state—they will start into growth whether you wish it or not—in this case, when the bud has grown a few inches, it is better to reduce any wild growth from the Briar at once and try to make as much wood as you can from the pushing bud. Some buds grow and only make a few inches of weakly unripe wood; these are in great danger of being killed in winter. The best way is to nip out the top in the autumn, as soon as it has grown about 6 inches. This will cause the sap to concentrate about the rings of the bark, and in the ensuing spring it will throw out side-shoots for the formation of a head. It is always best to keep the buds in a dormant state, and this can only be managed by suffering as much wild growth as possible to remain on the Briar until the sap goes down about the end of October or November. About the 20th of November, not earlier, all the wild growth of the Briar may be cut away, leaving only about 6 inches of wood beyond the bud; all side branches may be cut in close. This winter-pruning of budded Briars is necessary, otherwise any weight of snow lodging on the wild growth would break down the shoot and destroy the bud. Budded Briars are very liable to accident from wind, and often break at the place where the cross-cut was made when the bud was inserted. In consequence of having had so many accidents from this cause I have long since discontinued making the cross-cut. I now only make the long incision, and insert the bud with a piece of flat ivory filed down to a bluntish point, like a very flat lead pencil. Such an instrument can be easily made from the broken handle of an old razor. Since I adopted this plan I have never had an accident from the Briar shoot breaking near the bud. About the end of March all the budded Briars must undergo the operation of pruning; the portion of wood left in November, when all the wild spray was cut away, must now be entirely removed, except one bud just above the inserted bud; this one wild bud must be left on the shoot which was worked, and this is called the sap bud—its office being to draw the sap upward, and help the pushing of the inserted bud. When the sap begins to flow freely, it is directed to the one wild bud, which hastens the completion of the union where the incision was made, and the inserted bud, which has remained so long in a dormant state, breaks strongly, and soon commences to grow in earnest. If no sap-bud was left, the inserted bud might not start so readily, and the stock, in order to get rid of its sap, would commence throwing out side-shoots and suckers from the root. When the bud does not start into growth after receiving the pruning and treatment above stated, it is a sure sign that some growth is going on under ground—probably a strong sucker or two are starting from the Briar root. If anything of this sort is suspected, get the garden fork and loosen the soil a little, when you will probably find the enemy, which must be promptly removed; all side-shoots proceeding from the stock must also be removed. When the Rose has grown 3 or 4 inches, a stick about 2 feet long must be tied to the Briar in two places, and it must stand well up above the growing bud; to this support the Rose must be tied, as the growth proceeds, with worsted, which is better than bast, as it does not rot in winter, and allow the snow to weigh down and break the yet tender growth of the Rose. Occasionally we find a bud very obstinate, not starting into growth in the spring; sometimes it will start at midsummer, and I have seen a few cases every year where the bud actually refuses to commence growing until the following year; but these cases are exceptional. It is, therefore, unwise to cut away the sap-bud until after midsummer; but the points of the shoots may be nipped out occasionally, by way of coaxing the inserted bud into growth. Watch the stocks closely until midsummer, and rub away any wild growth that the Briar may make as fast as it appears, in order that the full flow of sap may be directed to the growing Rose. When the bud has grown 6 inches nip out the top, and side-branches will be thrown out, and a head soon formed which will bloom in autumn. HENRY TAYLOR.

Rose Cottage, Fencote, near Bedale.

Zephyranthes Culture.—Z. candida is a pretty bulbous autumn-flowering plant, with white flowers, resembling large white Crocuses, 6 inches high. I have not succeeded in procuring the true Zephyranthes Atamasco, but I am looking forward to flowering Z. carinata veda, which produces rose-coloured flowers, 3 or 4 inches across, according to its description. The bulbs would probably require to be kept dry in winter. I intend, however, preparing a bed specially for half-hardy and many so-called hardy bulbs. I am convinced that I could grow most of them in a border, with plenty of leaf mould and sand, very well drained, with some kind of protection to keep the wet from the bed. I do not fear the frost with bulbs deeply planted. Here I may mention that I have, in the wild garden, seven large clumps of Dahlias pushing strongly up, which have been for two years in the same position, with no protection, excepting 3 or 4 inches of dead leaves. The sub-soil being gravel, they have not suffered from stagnant water about the tubers.—OXON.

NOTES OF THE WEEK.

—— One of the most charming garden scenes we know of is that now visible under the trees at the lower end of the Serpentine, which has lately been transformed into a beautiful dell, graced by numerous tropical plants very well grouped. In this respect, indeed, there is great improvement noticeable this year. Some masses of ordinary-looking bedding plants somewhat mar the scene, and so do the bits of rock placed at regular intervals by the water—blemishes that existed before Mr. Gibson had the management of the park. Where Palm trees, Ferns, and similar plants, are grouped so charmingly and naturally, it would be best to introduce a little colour on the same principle. This example of what is called sub-tropical gardening will do more for it than a thousand times the number of plants here seen would, if dotted about in the ordinary monotonous manner.

—— The recent heavy rains have much injured both fruit and flowers, the latter so much that the supplies from out of doors for Covent Garden have been much deteriorated, and many have had a difficulty in disposing of their bush fruits, except at unremunerative prices. Large quantities of damaged fruits are now being sold at low rates for preserving. Potato crops, too, are suffering in some localities from the excessive wet, which, as is well known, induces disease.

—— The ripening fruit on red Astrachan Apple trees, in the Sawbridgeworth Nurseries, is now conspicuously brilliant, and abundant. The very high colour in this case is owing to its being grafted on the Nonsuch Paradise. It is, of course, one of the best early Apples.

—— Two beautiful Alpine Harebells are now in flower at Messrs. Backhouse's, at York. They are very small species—from 1 to 2 inches high when in full bloom, both having erect flowers; those of C. Zoysii, being singular in form, tubular, and closed at the mouth.

—— Mr. Peter Barr recommends amateurs making collections of Daffodils, to grow them in the Grass, where this can be done conveniently. They die down early in summer, and are charming when seen in the Grass nooks in the pleasure ground, lawn, or wild garden.

—— In speaking of the acclimatisation of useful birds, Senor Fernandez mentions the introduction of starlings into Germany by Lenz. This bird will consume about 120 worms and snails daily. In Gotha there are now said to be 180,000 of these cultivators' friends, where, before the efforts of Lenz, they were entirely unknown.

—— The exhibition of the Pelargonium Society will take place in the gardens of the Royal Horticultural Society, South Kensington, on Wednesday next, July 21st. Notice of entries should be sent in to Mr. Barron, at South Kensington, in the usual way. The annual meeting of the Pelargonium Society will take place at Chiswick, by permission of the Council, on the afternoon of the 22nd inst., the day following the show.

—— Mr. Riley is now in the south of France, in the country devastated by the Phylloxera. He has been giving the growers valuable advice as to the kinds of American Vines not liable to be attacked by this pest, and which, in consequence, are likely to be of great value as stocks to the French growers. To mark their appreciation of his services to Vine culture in France, the Agricultural Society of Herault gave a grand banquet in his honour, at Palava, on the 12th inst.

—— To show their confidence in the Royal Horticultural Society, many of the exhibitors hope to make gratuitously the exhibition that is to be held at South Kensington on the 21st one of the finest the society has ever held. Those who have already signified their intention to do so are Messrs. Veitch & Sons, Mr. B. S. Williams, Messrs. J. & C. Lee, Mr. Bull, Mr. Charles Turner, Mr. Standish, Messrs. Osborn & Son, Mr. Wills, Mr. Cutbush, Mr. Laing, Messrs. Paul & Son, Mr. Parker, Mr. W. Paul, Mr. Ley, Mr. Morse, Mr. Wimsett, and Mr. Barr. It is also probable that many other well-known horticulturists will lend their aid.

—— Mr. Max Leichtlin, writing to us from Baden Baden concerning Bletia hyacinthina, states that this pretty terrestrial Orchid must be hardy in England, although it is, for the most part, kept in a cool house. Last autumn he bought one plant of it and put it into a walled frame, in order to give it a little protection. The frost penetrated the frame at various times, and so much so that the soil was frozen from 1 to 2 inches in depth; but the root-stock of the Bletia, being below this, remained uninjured, and pushed up young shoots in April, which bloomed well about the latter part of June. The flowers are of a bright magenta colour, and last for about a fortnight. The plant seems to be well worth growing.

SAVING STOCK SEED.

The probability of securing a good proportion of double flowers from stocks depends partly upon the character of the "strain" grown and partly upon the mode of saving seed. There are some strains sold that no mode of treatment or manipulation can induce to furnish double flowers, as I have often experienced to my sorrow. Some years ago I endeavoured to secure a stock of the white Brompton, and grew seed of it that was highly recommended; however, when the plants flowered all were single. Acting upon the advice of an old cottager, who had grown good scarlet Brompton Stocks for many years, I selected plants which produced flowers having five or six petals (the normal number of petals is four), and these were marked and the seed specially saved and sown. I also pinched out the points of the spikes, so as to allow of but a few pods being produced on each, and of course these were finer in consequence; still I got no double flowers. And, after a third trial, made in the same way, I abandoned the stock. Again, after a few years, I obtained from one of our large nurserymen seeds of scarlet, white, and purple Brompton Stocks, and of these not a double flower was produced in the case of either of the two latter, and but sparingly in that of the former. Still worse, was the experience of a neighbouring market gardener, who purchased 1 lb. of seed of the Scarlet Queen Stock from a seed house; and, out of the thousands of plants from this that bloomed last spring there was not one that had double flowers. These cases show how careless some are in ascertaining the quality of the seed stocks which they purchase. It may be accepted as an undoubted fact that if Stock seed be offered abundantly and cheaply it is next to useless as far as good double flowers are concerned. Since my previous experience with the White Brompton I have secured a strain of that variety which produces at least 50 per cent. double flowers. Whether needful or not, I make it a rule with my present strain to pinch out all the points of all the spikes of bloom, and to remove the weakest side branches. The German Stocks so commonly grown in gardens during the summer are chiefly grown in pots, and it is said that the growers have the power, by manipulation, to alter the proportion of double flowers produced. Any good strain of German Stocks gives from 70 to 80 per cent. double flowers. I have now grown that beautiful pyramidal summer Stock called Mauve Beauty for about six years, and find that, grown in the open air under ordinary culture, and with the points of the branches stopped, it invariably produces at least 70 per cent. of double flowers. Another variety, of German origin, named Violacea, grown five years also, constantly produces the same proportion. My experience of Mauve Beauty is this—that the strongest plants in the seed-bed are generally double-flowered; and I infer from this that it is best to select the strongest of the single ones for seed-bearers, and to weed out all that are of weak growth. I am also by this led to believe that the finest seeds produce the most robust plants, and, in consequence, the greatest proportion of double flowers. This, if correct, is a great argument in favour of the plan of pinching out the points of the spikes of flower—in fact, thinning the pods, so that the strength of the plant may be thrown into the production of fine pods. In my locality there are grown in the cottage and market gardens some fine strains of the scarlet and purple Queen Stock, dwarf, robust, and hardy, producing a large proportion of double flowers; but these receive no manipulation. There is also a fine scarlet Brompton Stock that seems to be carelessly grown, but which, nevertheless, produces many grand double flowers. No doubt, if some amateur could give time and attention to some of these strains of Stocks, he might be able to improve them by manipulation or selection; in any case, it would be exceedingly interesting to ascertain whether high culture, selection, and thinning the green pods, did or did not produce any greater number of double flowers than now results from ordinary, or rather, careless cultivation. A. D.

KALMIAS FOR SMALL GARDENS.

Few flowering shrubs can compare with these for beauty, and yet one seldom sees them except in large establishments. Grounds of small size might be made much more interesting and enjoyable by introducing a few choice flowering shrubs, such as the above, instead of a repetition of Laurel, Box, and plants of that description. The Kalmia is a native of North America, and is there found growing on rocks slightly covered with vegetable soil. It is also found overhanging the margins of streams, and on the sides of hills in sterile looking soils containing a large quantity of grit. Notwithstanding this, the plant, like other American shrubs—the Rhododendron for example,—is fond of moisture, a good supply of which is necessary to its successful cultivation. The Kalmia forms a small compact, dense, growing little shrub, admirably suited for the embellishment of the front of shrubbery borders, or for forming beds or clumps on lawns or pleasure grounds. The foliage being of a lively deep green shining hue sets off the lovely pink flowers to great advantage. There are several varieties now in cultivation, but the old latifolia is still one of the best. Any soil in which the Rhododendron thrives will be thoroughly adapted for the growth of Kalmias. It is not necessary for either that the soil should be peat, although this is best suited to the cultivation of both, and where it is only a question of a single clump, or a few plants, it is better to make sure of success, and begin with that material to grow them in. Where this is not readily obtainable, the parings from the sides of roads or paths, having plenty of grit in them, are a good substitute. With this, mix about a third of thoroughly rotten leaves, and, in planting, tread the soil firmly about the roots. It must be borne in mind that these plants, like Rhododendrons, have a strong aversion to chalk, and any soil containing this in any form is sure to prove fatal to them. The Kalmia is a plant which is somewhat fond of shade; therefore, in planting, make choice of a position where this can be afforded naturally for a few hours during the day. When growing, give a good soaking of water, as the succeeding year's bloom depends on the kind of growth that is made by the plant previous to the flower-buds being formed on the terminal ends of the young shoots. These swell gradually on during the autumn and spring, and at the beginning of June they burst forth, forming a compact bunch of rich pale pink crimped-looking flowers, as singular in that respect as they are beautiful. The Kalmia is a first-rate subject for forcing, and may be bought for that purpose well set with bloom buds at a moderately cheap rate. J. Sheppard.

TREES STRUCK BY LIGHTNING.*

For many years past, it has been customary to notice, at the Botanical Society's meetings, trees injured by lightning. A thunderstorm of rather a local character took place on the 9th of October, 1874, on the road leading from Loanhead to Lasswade. The electric fluid struck a large healthy Ash tree, which is now quite dead. It was one of a row of trees overhanging a line of telegraph posts and wires on the south-east side of the road. Five consecutive telegraph posts, standing 150 feet apart, were thrown down, and more or less split up. I recently inspected all the trees in the line where the posts were injured, and found that, without exception, they were either Elm or Ash. One Ash, I have said, has been totally killed. It stood near the centre of the line where the telegraph posts were destroyed. The wires, however, do not seem to have been in contact with it, or, indeed, any of the trees. Another Ash is also disfigured on one side, and on portions of its top, the bark being stripped off about 2 inches in breadth, beginning about 6 feet below the level of the wires, a line being distinctly traceable to the bottom of the tree. Several of the Elms have had narrow portions of bark, from 2 to 3 feet in length, and about 1 inch broad, displaced from their stems; and this has always occurred on the side next the wires. One Elm, where the wire was within 12 inches of the stem, has a strip of bark, 2 feet long and about 1 inch broad, taken off immediately below the level of the wire. This denuded space is straight for several feet, and, although connected, it is observed to turn round, and to have entered the ground on the east side of the tree. Notwithstanding that the wires appeared to be at a greater distance from the Ash than the Elm trees, the Ash trees suffered most. Probably the Ash tree killed was first struck, and the fluid afterwards communicated with the telegraph wires.

Flower Gardening in Hyde Park.—In Hyde Park, the parallelogram form of bed is popular, and the overladen aspect of the strip of Grass next to Park Lane is too evident—in some parts more than others. A sheet of fresh green turf now and then is what would relieve the eye here, and not a continuous belt of heavy-proportioned beds, furnished with Geraniums chiefly. Flower-beds, however, look better here than those in the Green Park, but they are too many, and have too little variety amongst them. From this fashionable promenade it is pleasant to escape to the long herbaceous flower-walk in Kensington Gardens. The seclusion here, and the more natural aspect of both trees and flowers, are a relief to the eye. It was gay with Delphiniums and Canterbury Bells, and many other hardy plants that looked well relieved by the trees behind.—J. S.

Flower-gardening at Kew.—A country correspondent of the "Field" says, "Among other things, one looks for something good in the flower-gardening way here, and this is effective generally, barring the large circle at the end of the long walk, which, at a distance, looks a mere dusky object, and is quite ineffective. It is filled with pattern-work, composed of Geraniums, Centaureas, Alternantheras, Echeverias, Sedums, &c., the succulent class predominating. This bed, which seems to have been placed in its present position as a terminating object to the long walk, along both sides of which there is bedding enough of the ordinary kind, is anything but the conspicuous object it ought to be, furnished as it is now, and as it has been for years past. Such a bed, we conceive, should fill the eye, and afford a contrast to the rest of the bedding; but, instead of this, it is indistinct and unnoticeable, its presence hardly attracting attention but for the burnt brick edging with which it is surrounded. Whoever suggested this incongruous bordering to such a bed, in such a place, deserves a monument of the same material. It is a conspicuous outrage on good taste, that all may contemplate with advantage who visit Kew. I maintain that nothing would be more becoming to the bed than a Grass margin of proportionate breadth; at all events, brick is a barbarism. I could not help thinking what a grand mass of Pampas Grass could be grown here with good culture; and the Grass need not occupy all the bed: it is a position for nobler plants than those of the ordinary 'bedding' class which meet the eye all around. I would suggest, for another year, a central mass of Pampas Grass, occupying two-thirds of the bed, and, interspersed among the clumps of these during summer, a few tall sub-tropical plants of the Palm and Dracæna type, and round the outer margin good plants of Dracæna grandis and others, Cannas, and effective subjects of the same kind—one noble group, gorgeous in habit and colour, but divested of all formality in arrangement."

Specimens of Large Pampas Grass.—The finest example of this I have seen was in Staffordshire. It was growing on a well-drained lawn; but holes 8 feet deep, and filled with loam and cow manure, had been prepared for each plant. One plant, three years planted, was of immense circumference, the leaves unusually broad, long, and erect, and bore about two dozen flower-spikes, which stood nearly 12 feet high. This was simply due to high culture in a climate not unfavourable to it, and no doubt the same could be accomplished in the neighbourhood of London. The plant requires a deep rich soil and abundance of moisture in summer, but a thoroughly dry bottom in winter. Under such conditions I have seen it stand without any protection in winter in Scotland, and flower annually.—J. S.

Lilium monadelphum and other Lilies.—I notice in a recent number (see p. 8) that a correspondent enquires what is the greatest number of flowers produced by one stem of this Lily. I believe Mr. Maw had twenty-five last year, but the finest spike I ever saw was in my own garden a month ago. It had fourteen flowers, of such size that the whole could not be drawn on a large folio sheet without crowding. Mr. Hovey's account of the hybridisation of Lilies in America is very interesting, but I think that the climate must have something to do with his remarkable success, as no one of late years in Europe seems to have done anything particular in this line. Can any of your correspondents inform me where I can find the catalogue of hybrid Lilies raised by Mr. Groom about thirty years ago, which are referred to in Mr. Hovey's letter? I believe they were mentioned in Glenny's "Garden Almanac;" and, as I am trying to trace the parentage of the different varieties of Orange Lilies now in cultivation under many different names, I shall be glad of some information about this, as I believe Mr. Groom was the raiser of many hybrids between elegans and bulbiferum. Having recently examined, in company with Mr. Baker, the type specimen of L. elegans in Thunberg's own herbarium, I feel sure that the plant is undoubtedly one of the forms of what is generally called Thunbergianum; and, as the laws of nomenclature compel the change already made by Mr. Baker, I hope that the name of elegans will be adopted instead of Thunbergianum in all gardens and catalogues.—J. Elwes, *Miserden House, Cirencester.*

The New Race of Irises.—In your account (see p. 7) of the hardy plants in Messrs. Henderson's nursery, the Japanese Irises, known by the name of I. Kæmpferi, are mentioned as being very fine. I feel sure that this set of Irises will, when more plentiful, be as much esteemed in the garden as those usually known as I. germanica. Iris Kæmpferi (E. G. Henderson), is a very fine plant, as every one must admit; but it is, I was going to say, a mere weed—though that is rather too strong an expression—in comparison with a variety I saw at Mr. Leichtlin's last week. So beautiful was this flower, that I think it would vie with the finest Orchid in cultivation, both in size and colour. Each petal exceeded 3 inches in length and breadth; the whole flower which was nearly flat, being at least 7 inches in diameter; the colour, a bright rose, variegated with white. I believe that others as fine, or nearly so, are in the same collection; and as they ripen seed freely, we may hope in time to see a race of Irises of extraordinary size and beauty. M. Van Houtte, of Ghent, is the fortunate possessor of a wonderful form of Japanese Iris, which, if the drawing is correct, has the flower completely pendulous, on a recurved peduncle.—J. Elwes, *Miserden House, Cirencester.*

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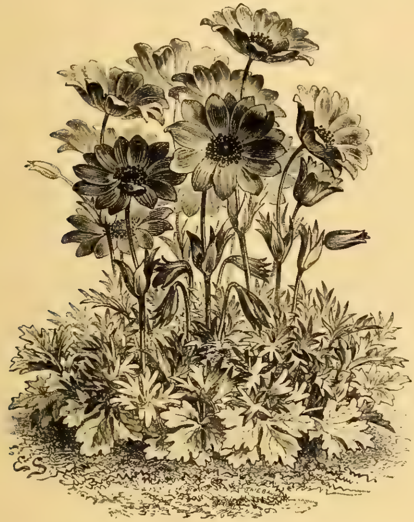
* Read by Mr. M'Nab, before the Botanical Society of Edinburgh, 8th July, 1875.

THE FLOWER GARDEN.

THE SCARLET WINDFLOWER.

(ANEMONE FULGENS.)

This is a plant almost unknown in gardens, that which is met with under the name in collections being no other than one of the bright red varieties of the Star Anemone (A. stellata Lam. A. hortensis), which, in some respects, resembles A. fulgens, to which, however, it is inferior, as regards the size and hardiness of the plant, the vigour of the flower-stems, and the breadth and colour of the flowers. Anemone fulgens, represented in our engraving, which is one-third the natural size of the plant, is, properly speaking, the single type of A. pavonina, of which the double variety only is now usually cultivated. This is often confounded with the different varieties of A. stellata, and it is this confusion of names which has induced us to point out in a special manner the merits of A. fulgens, whose beauty and hardiness place it in the first rank of outdoor ornamental flowers. Whilst the Star Anemones (A stellata, A. hortensis) with single flowers, are of delicate constitution—requiring to be cultivated in peat or leaf soil, and sheltered from the cold of winter—A. fulgens, on the contrary, succeeds in any rich garden soil which has been well manured, and also in the soil of meadow land; besides this, it is sufficiently hardy to be left without shelter in the open air during winter, and it even gains in size and beauty when left undisturbed where it grows for several years, as is often the case with other perennial plants. Tufts of it thus grow larger every year, and produce flowers that become annually more ample and abundant, especially if care be taken to mulch thoroughly during the winter. These flowers, which begin to show themselves in February, and succeed each other until April, are borne on flower-stems some 8 to 12 inches in height. The corolla, which is well stored with petals disposed in a wide-spreading cup some 2 or 3 inches in diameter, is scarlet-vermilion-red in colour, and of a brilliancy that it would be difficult to rival, for it is absolutely dazzling when illuminated by the rays of the sun. The blossoms open well when cut and placed in water, and are peculiarly adapted for forming bouquets and for winter and early spring decoration. The rhizomes of Anemone fulgens may be planted either in autumn or in spring, and even when the plant is in full growth; but if it be decided to obtain plants of it in full flower in spring it is better to plant them early in autumn and not later than September. In this case a good mulching given before the winter will go far in ensuring an early and abundant flowering.—MM. Vilmorin & Co., in "Revue Horticole." [The merits of this brilliant plant have now been thoroughly tested in England and frequently pointed out in The Garden. It is, however, as yet, too little grown. It adds quite a new feature to the garden of hardy flowers when it is well established.]



The Scarlet Windflower.

DR. KELLOGG ON LILIES.

As I had the pleasure of showing you my paintings and collections of native Lilies while in California, before The Garden was first published, I now send you an account of the early history of some of them. Happily our lot has fallen upon an age appreciative of one, at least, of the divine commands—which all will allow is a good beginning—to "consider the Lilies." It seems incumbent upon all those who are associated in any degree with Lily literature to state facts known to them in aid of those seeking a just record of these lovely plants.

Lilium Washingtonianum (Kellogg).—A painting, still in my possession, of a single flower, branch, and leaf of this Lily, made from a dried specimen, was presented before the Cal. Acad., Nov. 11th, 1854, calling public attention to it, besides some fresh bulbs distributed—though not then described—the materials being deemed unsatisfactory. We diligently strove to cultivate this bulb for four or five years; in 1859 it bloomed, was described, and accompanied by another more characteristic painting, and specimens freshly in flower, August 1st, 1859, Proc. Cal. Acad. Sciences, Vol. II., p. 13; it was also lithographed, coloured, and distributed widely, both with proceedings, and also in a colonial monthly magazine, named "The Hesperian," published in San Francisco, for October, 1859. In allusion to the coast form, both before the Academy and in the monthly magazine in question, it was stated, "We have probably another species of white Lily, which has not yet attained sufficient strength to bloom." I called Mr. Miller's attention to many peculiar features of this species as we were inclined to view it, requiring further investigation; whereupon he collected and sent it abroad. I have, at this moment, a specimen, 6 feet high, with sixty blossoms on it.

L. Bloomerianum (Kellogg).—About fifteen years ago I began the culture of this Lily, made a large drawing of it, which you saw, presented it with specimens to the Cal. Acad., discussed, and deemed it a good species; but no written description offered, as none appears upon the record at that time. The painting was sent to the Smithsonian Institution, at Washington; thence to New York, to Dr. Torrey, and to Professor Gray, of Cambridge, U.S. Finally, February 20th, 1871, Vol. IV., p. 160, it was described. Subsequently Mr. Max Leichtlin sent me his painting of L. Humboldti, which certainly was not my L. Bloomerianum, but L. pardalinum. I can only account for the mistake (if mistake it was), by his describing one and accidentally figuring the other. The late Mr. Bloomer and myself, with others, always considered this as a distinct species, and he ever spoke of it as such, and continued its culture to the day of his death.

L. lucidum (Kellogg).—A bright orange Oregon Lily; the plant accompanied by a large painting, which you also saw, was presented before the Cal. Acad. of Sciences as new twelve years ago, and this name given to it then, on account of its peculiar bright, lucid, and sunny radiance. A careful description was written out, but held in abeyance in order to review it with reference to the character of the bulb (at that time having seen but one); this was also sent to Washington, New York, and Cambridge, to be submitted to those high in authority upon botanical questions. Specimens of the plant and bulb passed into the hands of Mr. Bloomer, but since the Academy's purchase of these relics, coming again to view, I published it and gave reasons for considering it distinct from L. canadense.

L. maritimum (Kellogg).—This is a very dwarf maritime Lily, recently described, although for five or six years past considered doubtfully distinct by Mr. Bloomer and myself; his opinion I find recorded on the label. A year ago I visited its native habitat, devoted particular attention to its special characteristics, and collected many bulbs for cultivation and distribution to Mr. Bloomer and other friends for study, culture, and comparison. It is now in bloom at Mr. Brooke's, and I think it well worthy of a distinctive name. It has not the creeping cæspitose or zig-zag mats of bulbs as the L. parvum (Kellogg) or L. pardalinum (Kellogg), and may be worth a distinct notice hereafter. A. Kellogg.

GARDEN VEGETATION IN JUNE.

The month of June, upon the whole, has been somewhat dry and cool. The lowest thermometer markings were on the mornings of the 1st, 2nd, 3rd, 13th, 14th, and 21st, when 40°, 39°, 37°, 40°, 37°, and 39°, were registered. While the highest morning temperatures were on the 12th, 24th, 25th, 28th, 29th, and 30th, when 53°, 49°, 54°, 48°, 49°, and 48°, were respectively indicated. Easterly and north-easterly winds prevailed during the early part of the month. There were a few occasional showers, but no rain of any consequence fell till the 30th. Vegetation may now be said to be at its best, with a few exceptions, such as the Locust tree, Liquidamber, Tulip tree, deciduous Cypress, and Catalpa tree. The foliage is this year everywhere well developed; most of the late summer flowering trees were generally at their best about the 5th of June, such as the scarlet-flowering Horse Chestnuts, as well as the double flowering Thorns, while the Cratægus tanacetifolia, or Tansy-leaved Thorn, was in full flower on the 25th of June. This is a most desirable tree, owing to its late flowering propensity, but one rarely seen in cultivation. The common White Elder has been particularly fine this season. The first open flowers on it were observed on the 5th of June, and all were in perfection on the 28th. The common Elder, beautiful as it is both in flower and fruit, is now becoming a perfect nuisance all over the country. It is extending itself very generally over wooded lands and gardens, killing, or rather smothering many good evergreen shrubs such as Rhododendrons, Portugal Laurels, &c., as well as numerous deciduous shrubs of all classes. The Dwarfer deciduous shrubby plants have been flowering very freely during June, such as the Colutea, Syringa or Mock Orange, Snowberry, Barberry, Weigela, Deutzia, Wild Roses, Yellow and White Broom. The common Rhododendron ponticum has also shown an abundance of flower. The Portugal Laurel is now (July 1) thickly covered with flower buds.

In my address to the Botanical Society, November, 1873, I noticed that the Kalmia latifolia does not flower as it used to do thirty years ago. The plants of it cultivated in the garden are of all sizes; they stand in all situations, and vary from 3 to 30 feet in circumference, and are in the most perfect health. One of the largest plants produced this year a single cluster of flowers on the top of it, while no others had a vestige of bloom, except on some plants which were received from London with flower buds formed on them, forced during the winter and spring of 1873-74, and planted out after the young growths were matured; several of these plants are this year flowering profusely. For some years back it was only on the forced plants that flowers were obtained in the open air, and even in these cases, no flowers were got after the first year. The flowering of the Yucca gloriosa is by no means an unfrequent occurrence, but it is somewhat remarkable this year to see so many coming into flower. On the rock-garden alone fourteen specimens are now blooming—of these ten are the Yucca gloriosa, one Y. Ellacombii, one Y. glaucescens, one Y. filamentosa, and one Y. angustifolia. Six specimens of the Y. gloriosa are also flowering in other parts of the garden. I attribute the free-flowering of the Yuccas this year to the extreme mildness of the winters of 1872-73, and 1873-74, succeeded, as they were by average summers and autumns. The Yuccas in the rock-garden are all growing in raised rough octagonal stone boxes, filled with good earth and covered with soil outside, so as to keep the stones together, the sloping banks being arranged into rock-work compartments for the growth of Alpine plants. The roots of the Yuccas are confined all round, the fibres only issuing through the joints into the surrounding soil.

Owing to the dry weather, the herbaceous and Alpine plants, particularly the inhabitants of the rock-garden, have come very rapidly forward, but generally the flowering, with certain exceptions, was of short duration. On the 1st of July, 273 species and varieties, exclusive of duplicates, were counted in bloom. Amongst the plants yielding the greatest display at that date, were Veronica rupestris and V. pinguifolia, Campanula turbinata and its numerous varieties, Acantholimon glumaceum, Scabiosa alpina, Saponaria ocymoides major, Onosma echioides, many Crustaceous Saxifrages, Dianthus alpinus, D. glacialis, D. corsicus, Androsace lanuginosa, Genista sagittalis and G. tinctoria, Thymus Serpyllum album, Sedum ibericum, Papaver alpinum and its varieties, Silene alpestris, Lithospermum prostratum, Arenaria grandiflora, Delphinum Belladonna, Potentilla Dr. André, Helianthemums (double and single), also the double Lotus corniculatus. One of the most striking plants on the rockery was a double Dianthus, known as the Fettes Mount Pink; this is a very free-flowering pale rose-coloured variety. Subjoined is a list of the better class of plants as they came into bloom during the last month, chiefly in the rock-garden.

Plants in Bloom in June, 1875.

1. Arenaria grandiflora
Dianthus Henryanus
Fragaria lucida
Linum campanulatum
Primula sikkimensis
Silene alpestris
Thalictrum tuberosum
Veronica verbenacea
2. Anemone alba
Crespedium Richii
Erodium absinthifolium
Linaria alpina atropurpurea
Pernettia angustifolia speciosa
Primula farinosa
Veronica Pellonia
Vicia argentea
3. Actinella scaposa
Aster alpinus albus
Campanula fragilis hirsuta
Dodecatheon Foxii
Scutellaria alpina
4. Arenaria cæspitosa
Hydrocotyle sibthorpioides
Menziesia polifolia vera
Pentstemon acuminatum
5. Aster alpinus
Dianthus cæsius
Epilobium latifolium
Hippocrepis helvetica
Onosma echioides
6. Astragalus vaginalis
Cerastium grandiflorum
Hippocrepis comosa
Oxytropis lapponicus
Potentilla alpestris
Sedum stenophyllum
6. Silene maritima flore pleno
7. Bupleurum ranunculoides
Campanula turbinata
Saponaria cæspitosa
Veronica pinguifolia
8. Crucianella stylosa rubra
Gypsophila repens
Helianthemum piloselloides
Oxytropis deflexa
Scutellaria altaica
Sedum deficiens
9. Chrysobactron Hookerii
9. Cinicifuga americana
Robertia taraxicoides
Silene ciliata
10. Aquilegia chrysantha
Epilobium Novæ Zealandiæ
Menziesia polifolia versicolor
Potentilla sikkimensis
Stellaria scapigera
Thalictrum formosum
11. Arum palestinum.
Dianthus dentosus
Kalmia augustifolia
Androsace lanuginosa
12. Artemisia sericea
Campanula picta
Carex frigida
Centaurea uniflora
Lindelofia spectabilis
Scabiosa alpina
Stellaria pungens
13. Prunella pyrenaica
Sagina procumbens pleno
Sedum aizoon
Silene petræa
Veronica taurica
14. Arenaria Ledebourianum
Epilobium obcordatum
Globularia nudicaulis
Lotus corniculatus flore plena
Pyrola media
15. Acantholimon glumaceum
Bupleurum Sikkimense
Erica ciliaris
Hemophragma heterophylla
Trientalis europæa
16. Sedum Kamtchaticum
Veronica Girdwoodiana
17. Paronychia serpyllifolia
Potentilla lanuginosa
Sedum asiaticum
18. Helianthemum tuberaria
Œnothera marginata
Potentilla Dr. André
Scabiosa graminifolia
19. Gaultheria Shallon acutifolia
19. Gentiana Wallichii
Stenactis speciosa
Campanula cenisia
Santolina incana
20. Æthionema cordifolia
Coronilla iberica glauca
Nigritella angustifolia
Paronychia tomentosa
Potentilla Louis Van Houtte
21. Campanula linarifolia
Campanula turbinata elegans
Scutellaria hastata
Sempervivum Laggerii
22. Erica Mackaiana
Lewisia rediviva
Sedum alsinifolium
Saxifraga rivularis
Wulfenia Amherstii
23. Asperula cynanchica
Linum viscosum
Saxifraga aizoides
Thymus corsicus
Thymus Serpyllum hirsutum
Zygadenus elegans
24. Calochortus luteus
Modiola geranioides
Thymus Serpyllum album
25. Campanula Van Houttei
Orchis foliosa
Oxytropis campestris
26. Dianthus deltoides
Potentilla dahurica
Potentilla sericea
Sedum californicum
27. Prunella pyrenaica
Thymus alpinus
28. Dianthus versicolor
Potentilla dahurica
Sedum ibericum
29. Iris ficifolia
Teucrium Botrys
Thalictrum anemonoides fl. pleno
Vaccinium macrocarpum
30. Draba glacialis
Gentiana gelida
Liparis Loeselii
Potentilla alchemilloides
Pterocephalus Parnassii
Sagina setigera

Royal Botanic Gardens, Edinburgh. Jas. M'Nab.

Chrysobactron Hookeri.—This is a very fine plant. It grows here in a moist peat bed, under a north wall, associated with Linnæa borealis, which thrives equally well, and forms a carpet for C. Hookeri and Cypripedium spectabile. C. Hookeri will do fairly well in any garden soil; but what a difference between its starved appearance there and its luxuriance in a moist vegetable or peaty soil.—Oxon.

NOTES ON HARDY FLOWERS IN OXFORDSHIRE.

There are several good Œnotheras. Œ. fructiosa major is a handsome and showy plant, with yellow flowers. Œ. macrocarpa is a good prostrate plant, and looks well drooping over banks or rock-work; the flowers are of a clear light yellow, and very large. Perhaps Œ. marginata, with large and handsome white flowers, and very fragrant, and which grows about 9 inches high, is the best of all. Ourisia coccinea is a very uncommon plant, now past flowering. It grows freely with me in a moist north border, with plenty of vegetable mould. It is quite dwarf (about 6 inches high), with pendent flowers of a bright scarlet, and is a desirable plant. Onosma taurica is another good plant, though it is rather apt not to turn up a second season. Though one of the Borage-tribe it has no coarseness, and is a very distinct plant, grows about 8 inches in height, with beautiful yellow waxy flowers in clusters, and is a handsome plant for the mixed border or rock-work. Opuntia Rafinesquiana is a dwarf Cactus, perfectly hardy in any garden border. It has been growing in Oxfordshire for three years without protection. Othonna cheirifolia, a glaucous, evergreen perennial, from North Africa, is worth growing. Here it flowers freely in rather light loam; the blooms are of a rich yellow. It dislikes a cold stiff soil. Of the Papavers, P. orientale, and P. bracteatum are very fine, and, perhaps, the showiest of all hardy perennials. A patch or two here and there on the turf have a fine effect, and they are by no means particular as to soil, but I do not find they like any shade, as the flowers die off before unfolding. Many of the dwarf Poppies are very pretty, but I do not know any which are perennials. Pascalia glauca, a tall and vigorous Composite, with yellow flowers, having a dark centre, spreads too quickly for border culture, but may be transferred with advantage to the wild garden, and with it Thermopsis fabacea and Physalis Alkekengi, both of which run about in the garden proper to the detriment of choicer and dwarfer subjects. Several of the dwarf Phloxes are valuable ornaments to the border, notably P. ovata, P. Listoniana, P. verna, P. subulata, and others. Phygelius capensis, a tall, shrubby perennial, about 3 feet high, thrives with me perfectly, in an ordinary border facing nearly due east, though it is supposed to be rather tender. The flowers are handsome—though there is a good deal of leaf in proportion—and pendent, the tube scarlet, with deep yellow throat. The Phyteumas are pretty for the front line of the border, generally with blue, spherical flowers. P. Halleri, I think, is the best. They will thrive anywhere. Polymonium grandiflorum does not seem to me to be better than the old P. cœruleum. P. reptans is distinct, and generally very floriferous. Polygala Chamæbuxus is a very neat little shrub, with cream-coloured flowers, and Box-like, evergreen leaves. It requires moist vegetable soil, in which it grows about 9 inches high. It may be associated with the pretty little Cornus canadensis. Some of the hybrid Potentillas are very good (one called Vase d'Or, with very large double-yellow flowers, being very effective), and are of much more importance than the species.

Of the Rudbeckias, though all are showy, vigorous plants, R. californica is the finest, growing to 5 feet or more in height, with yellow flowers nearly 6 inches across, with a dark brown centre rising like a cone, nearly or quite 2 inches high. It should be seen in every garden, and in the front of shrubberies.

Of the Salvias (S. patens not being really hardy), I can select two for the garden—viz., S. pratensis rosea, which, as the name implies, is a pretty rose-coloured form; and R. pratensis lupinoides, a handsome blue and white variety of the English Sage. Saponaria ocymoides we employ as a carpet beneath other flowers; and flowering, as it does, a long time in succession, is very effective. A rough sandy mound about 12 feet square, in the wild garden, is covered with it, and every one who sees it is delighted. S. cæspitosa is now in flower; it is of a bright rose colour, about 6 inches in height, and is a handsome plant. The old flesh-coloured double form of S. officinalis will grow anywhere, and is very useful for a wild garden, which is the best place for it. There are so many good and useful Saxifrages, that they would require a great many pages to themselves. I will merely mention that all kinds seem to do in a sandy border as well as on rock-work, and I would mention particularly S. oppositifolia, S. op. alba, and S. op. pyrenaica as thriving on the level ground. The soil is well drained, and ordinary pebbles from the walks are mixed with it to the depth of about 18 inches. None of the perennial kinds of Scabiosa are worth growing, excepting, perhaps, a vigorous yellow one, attaining a height of 6 feet; this looks well in my wild garden with other vigorous plants. I cannot give it a name; would it be S. lutea?

Of the Statice tribe S. latifolia, over 2 feet high, with panicles of blue flowers on weak stems, but which mutually support one another, is the finest, and is a distinct and valuable species. S. tatarica and S. incana rubra, each about 1 foot high, with small crimson flowers, are also worthy of a place. Do not forget Schizostylis coccinea, an autumn-flowering bulbous plant, rather like a Gladiolus, and with crimson flowers. It spreads rapidly in any light loam, and is a very valuable ornament to the border. Of the Thalictrums T. concinnum and T. aquilegifolium are graceful plants, growing about 3 feet in height; T. anemonoides is a very pretty little plant, with the leaves of T. minus and white flowers (in umbels), resembling white Anemones; I grow it in a rather shady peaty border. T. minus and T. adiantifolium must be planted in the hardy Fernery as good substitutes for the Maiden-hair Fern. The Tradescantias in various colours, blue, violet, rosy, and white, are most valuable for placing in any cold, wet, clayey soil, when they will thrive apace. They will stand transplanting, too, when in flower, with or without a ball of earth, without complaining. Trillium grandiflorum grows vigorously in moist peat. I have not tried the other species. We all know the pretty little spring-flowering bulb, Triteleia uniflora; but I fancy few people as yet have T. Murrayana or T. laxa, which are now in bloom. The flowers are produced in umbels; those of T. laxa are on shorter stems, and of a deeper purple, than those of T. Murrayana, but whether this is only accidental I am not competent to say. At all events, they are both most effective, and the blooms freely produced. Give the Tritomas a light rich soil. If in heavy ground, they are liable to rot away in winter. Of the Trollius tribe, all are more or less good; but T. napellifolius, with deep orange globular flowers, is the most showy, and should be in all gardens. The best amongst the Veronicas I should call the following:—V. saturejæfolia, about 1 foot high, with fine bright blue flowers in good spikes; the variegated form of V. gentianoides, which is a pretty and attractive plant; V. taurica, a low-spreading evergreen kind; and perhaps V. saxatilis. Verbena venosa is a good bedding plant, and increases rapidly without attention. The flowers are of a fine bluish-purple, and the plant is quite hardy on ordinary free soil. I find I have made no mention of Anemone japonica, or vitifolia, or the fine white variety, Honorine Jobert. They are grand plants for wild and rough places in autumn. Good and showy as they are, I almost regret having introduced them to the mixed border, as they require constant thinning, or they would spread so rapidly as to exterminate many of the more delicate plants. Oxon.

ROCK GARDEN AT FETTES MOUNT, LASSWADE.

There is no accounting for the difference in the tastes displayed in selecting sites for dwelling-houses. Some prefer a piece of level ground which can be readily laid out in straight lines, while others, on the contrary, prefer hilly, uneven ground, which enables them to display their ingenuity in arranging it, taking advantage of every inequality which the surface presents. A style of gardening suitable to ground of the last-mentioned character has been carried out at Fettes Mount, Lasswade, the property of Mr. G. H. Potts. The ground in question is 3 acres in extent, and is situated on the lower north-eastern slope of a piece of rising ground commanding a very extensive view, but only in an easterly direction. One-half of this ground is devoted to the dwelling and out-houses, conservatories, and rockeries; also to the flower and kitchen garden, as well as orchard; the remaining half is used as a park and bowling green. The approach enters from the steep public road leading from Loanhead to Lasswade on the south-east side, and is carried up a slight serpentine ascent. The south side of this approach is successfully arranged as a rock-work retaining wall, the stones composing it being placed transversely—the larger ones at the bottom, and the shorter ones uppermost, and having a slight incline backwards to keep up the natural bank of earth behind. The stones are all embedded with soil, and are thus made suitable for the roots of plants. The surface-ground is turfed and dotted over with shrubs and trees. This retaining rock-work wall is densely covered with a miscellaneous collection of dwarf and creeping rooted Alpine plants, such as Sedums, the S. acre, S. anglicum, and S. turgidum being prominent, besides Sempervivums, Aubrietias, Campanulas, various species of Thymus, Vinca minor, and Veronicas, V. alpestris being the most conspicuous. This is a most charming rock-plant, and Mr. Potts may be said to be its original cultivator in Scotland. Saxifrages are also abundant, chiefly the S. muscoides and hypnoides section, with various tufts of the S. Aizoon minor. The colours of all are well blended, and harmonise perfectly, producing a pleasing effect at all seasons. The dense mass of damp soil behind this rock-work wall proves very beneficial to their growth and condition, which, notwithstanding their exposure to the sun, is excellent. For some years past the general rock-work at Fettes Mount has been gradually extending, and now covers a considerable portion of ground. The upright part of most of the rockeries is arranged, as described, for the chief approach, while the sloping upper surface is divided into compartments or pockets of various breadths, so as to have the plants more or less on a level with the eye. Although the different sections of plants cultivated are numerous, the great feature of this rock-work is the collections of Sempervivums and Saxifrages. Of the former, sixty-five species and varieties are cultivated; and all in the most perfect health, besides a good collection of named Sedums. Of Saxifrages, the collection consists of 150 species and varieties, including the Mossy, None so Pretty, and the Crustaceous group, all of which are thriving. At this time (24th of June) the Crustaceous section makes the most display—although all, or most of them, have light-coloured flowers varying from pure white to a light ochre tint, more or less dotted with pink spots. The occasional intermingling of the S. mutata with a spike of orange-yellow flowers varies the charm. All the Saxifrages are grown in loam placed in compartments formed of rough sand-stone, which crumbles freely down, and, in this state, mixed with the loam, seems to be admirably adapted for their roots. From the Saxifraga rivularis, from the summit of Loch-na-gar, to the gigantic S. nepalensis, from Upper India, with all the grades between, all appear equally to enjoy this peculiar sand-stone grit, as well as all the Sempervivums, Sedums, &c. The Fettes Mount collection contains good examples of many Alpine plants; and, although sections of these rockeries are devoted to different tribes, such as Veronicas, Gentians, Aubrietias, Dianthuses, &c., the Saxifraga section certainly commands the most attention. One great advantage which the Fettes Mount rock-garden enjoys in some of its departments is its water supply, which is chiefly obtained from the rising ground behind. In the centre of the gardens has been formed a small pond, the overflow of which is brought down in a series of rivulets and basins of various sizes, which are taken advantage of for aquatic, and other plants requiring a moist soil. In one of these basins, thickly surrounded with plants, the water is kept clear with frogs and perch, and has been so for several years; while the ever-changing chain of rivulets and basins being void of animal life, the water has not the same pure appearance. Water Lilies, Reeds, and Rushes are grown in all. Many plants, which naturally grow in moist situations, are thriving admirably; and many that are often found in dry situations are wonderfully benefited by the root moisture they receive. Fettes Mount affords several useful lessons to lovers of plants. A long raised bank or mound of somewhat serpentine appearance, composed of layers of stones and earth, 5 feet broad at the base, and about 6 feet in height, was erected for separating one portion of the grounds from the other. This rock mound is covered with various Alpine plants and shrubs, a large portion of it on one side being devoted to the culture of the Viola odorata (single and double), which here yields flowers of a larger size and more profusely than they do in the ordinary borders. Other contrivances for plant-growing seem peculiar to this place, and, one I must not neglect to mention. At the bottom of the garden, next to the outside wall, a deep gully has been formed, chiefly for the cultivation of Ferns. The interior is arranged with rough pieces of sandstone, cemented one upon another in somewhat fantastic forms, but chiefly on the face of the wall. On the top of this wall, a board, 18 inches broad, slightly projecting upwards, is fixed with iron straps; when rain falls, it runs down between the board and the wall, where it is received here and there into small irregularly-shaped rock-work basins, the outer sides of all being made rough for the cultivation of Ferns, and at different levels along the wall. The water is constantly trickling from one basin to another, aided by the use of a few worsted threads, and the overflow of all is led into a pond at the bottom of the gully, with the water from the chain of basins and rivulets before alluded to; the gully is thus keept moist and cool, and the overflow is then conducted out of the grounds. Such an arrangement as that described as covering the avenue wall at Fettes Mount would look well if carried out at many of our Highland railway stations. In such places, attempts are often made to render the foreground as picturesque as possible. Where the walls behind are formed in cuttings, backed up with soil (which is not uncommonly the case), they would look well if covered with certain forms of Alpine vegetation. Most plants necessary for such a purpose are easily increased. The leaves of the Sedums alone, when detached, root readily, and in a short time can be made to cover a large extent of surface. Of the foliaceous group of Sedums, small pieces stuck into the ground will readily grow. Off-sets from Sempervivums can be successfully divided, so as to make any number of plants. Of course, walls intended for such purposes must be made with stone and soil, having a slight incline backwards.

Royal Botanic Gardens, Edinburgh. James M'Nab.

A Giant Asphodel (Eremurus robustus).—This has been blooming beautifully in Mr. Leichtlin's garden, at Baden-Baden, and, though long past flowering when I saw it, still held up its stately flower-stem above everything in the garden. Imagine a gigantic Asphodel, with a flower-spike 7 to 10 feet high, the upper part of which is covered with large pink flowers from 2 to 3 feet of its length. Well was it named robustus, for it is so hardy that it can force its shoot through the frozen ground, and will endure heat, cold, and wind with equal indifference. It was introduced from Turkestan by Col. Korolkow, of the Russian army.— J. Elwes, *Miserden House, Cirencester.*

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Geranium platypetalum Bearing Seeds.—Your correspondent Mr. Jean Sisley, Lyons (p. 34), asks if anyone has induced Geranium platypetalum to bear seed. Here it bears seeds freely, which I shall be happy to send him if he wants them.—H. N. Ellacombe, *Bitton Vicarage, near Bristol.*

The Giant Parsnip (Heracleum giganteum).—In a mixed border of shrubs and flowers at Lyme Hall, Cheshire, are some fine specimens of this Parsnip, which, on account of their size, are striking objects, standing out, as they do, in bold relief amongst the shrubs. Such plants should, however, be used sparingly, or the effect which they would otherwise produce is lost.—R. M.

A Beautiful Combination.—A striking feature in the gardens here, and one which is greatly admired by visitors, is a Gloire de Dijon Rose planted at the foot of a large Holly tree. The Rose, which has taken possession of the tree, has nearly reached its top, a height of 25 feet, and has formed a beautiful object for some weeks past; until the rains spoiled the open blooms, the flowers and buds could be counted by hundreds.—W. Culverwell, *Thorpe Perrow, Bedale.*

Geranium anemonefolium and G. platypetalum.—I have obtained seeds from G. anemonefolium which I have just sown, and which I am inclined to think is the same as that figured in The Garden (see p. 7) under the name of G. platypetalum, of which I have also an unflowered plant. For both plants I am indebted to your correspondent Mr. Jean Sisley. It is possible the labels may have got misplaced, but I enclose a leaf of each. Will you kindly say if I have named them correctly.—P. Grieve. [The labels seem to have been changed.]

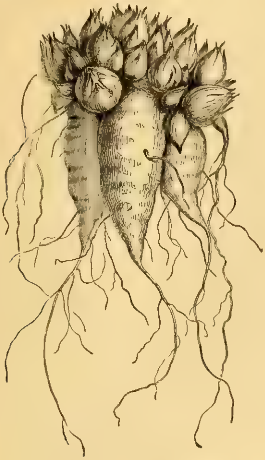
A Prairie of Flowers.—Under no other title can we so well describe the brilliant display of bloom which is now presented by Messrs. Carter's seed farms in Essex. On both sides of the road from Manningtree to Dedham may be seen broad fields of such beautiful flowers as Nasturtiums, Larkspurs, Nemophilas, Godetias, and Saponarias, with hundreds of other equally charming varieties, not growing in small patches, but in acres. This striking display of bloom is well worth inspecting.—C. H. S.

A Good Hardy Selaginella.—M. André writing of S. Braunii in the "Illustration Horticole," says it thrives vigorously in his garden in Touraine in sandy peat, raising its large elegantly cut fronds on a north rockery. It is a mountain plant from North India, and being so unlike the dwarf hardy species (S. denticulata) deserves cultivation in the open air; it was formerly grown a good deal in hothouses under the name of S. Wildenowii.

THE KITCHEN GARDEN.

OXALIS DEPPEI.

This is a Mexican species which has long been known in English gardens. The tubers, which in shape somewhat resemble Shorthorn Carrots, are not rhizome, like those of O. crenata, another edible species, but are well developed, fleshy, and transparent, and when cooked have an agreeable flavour. They are raised in April or May from clove-shaped offsets, which are produced in large quantities at the collar of the roots. These should be planted in good mellow soil, at distances of 18 or 20 inches apart, and should be earthed up like Potatoes, in order to assist the development of the tubers. In cold districts the latter ripen but slowly, and should not be lifted until late in the autumn. If frost is apprehended the beds should be covered with a mulching of dry leaves. After the tubers have been lifted and dried by exposure to the air they should be placed in a dry store, free from frost, where they will keep sound all the winter. Mr. Tillyard, when gardener to the Duke of Buckingham, at Stowe, showed at one of the Royal Horticultural Society's meetings specimens of this Oxalis; and, concerning its productiveness, it was mentioned that 18 square yards produced 980 roots weighing 217 lbs. This result was obtained from a piece of ground which had at one time been a walk, the gravel and sand, with the addition of some leaf mould, being trenched up together. The sets in this case were planted on the 2nd of May.


Edible roots of Oxalis Deppei.

Extra Early Vermont Potato.—I planted a piece of ground with this kind on the 10th of February last without any protection; and, on the 3rd of April, as the tops were giving indications of ripening off, I lifted a portion of the tubers for table use. Many of them weighed 5 ounces each, and, when dressed, they proved to be excellent in quality. They were white and mealy in texture, and cooked uniformly throughout. It is worthy of remark that in the same garden the old Ashleaf Potato was not ready until three weeks after the above, although planted on the same day, and side by side with it. I do not know what Alpha—which is professedly the earliest of these Americans—may prove to be in that respect, as I had none of it planted so soon; but I have never yet seen a Potato so early in coming into use as the Extra Early Vermont, or of so fine a quality when first dug. It has much the appearance of the older Early Rose; but, in point of time, is long in advance of it. My soil is a good mellow loam.—C. J. B., *Littlehampton, Sussex.*

New Lettuces.—Commodore Nutt is a Cabbage Lettuce of the All the Year Round type, but it proved to be still dwarfer than that variety. It is nearly all heart, does not run to seed so soon as some of the larger kinds, and is a great acquisition, owing to its taking up so little room in beds or rows. Sutton's Gem is another Cabbage Lettuce of a large size, and one which forms good hearts, which are crisp and well-flavoured. Sutton's Superb is a white Cos, and has proved with me to be the largest and finest variety of that strain that I have ever grown. When fully grown it is crisp, and requires no tying to form its heart, and I have no doubt it will turn out, when better known, to be a favourite market variety.—William Tillery, *Welbeck.*

Snowflake Potato.—As Mr. Howard suggests (see p. 532, Vol. VII.), it would be very satisfactory to have a tabulated statement drawn up by growers of this Potato in different counties, each giving his mode of treatment, with observations upon the appearance of the crop during the growing season; the weight of Potatoes grown from a pound should be given, and the number of plants grown by each individual, as the number of sets taken from 1 lb. of Potatoes by different growers varies considerably. Comparisons made in this way are of the greatest importance to Potato growers, for it is well known that different sorts of Potatoes, like different sorts of Strawberries, yield extraordinary results in some districts; while, in others, they are comparatively valueless. The statements to be made to Messrs. Hooper, and the rules submitted by them to competitors for the prizes offered by them for the Snowflake and Eureka Potatoes at the Royal Horticultural Society's snow next November, are very good, namely:—Date of planting, mode of culture, characteristics of the soil, nature of sub-soil, whether drained or not, kind and quality of fertilisers used, how and when applied, nature of the crop which occupied the ground immediately before.—J. T., *Alnwick.*

—— I bought a pound of the Snowflake Potato in March last, and placed them in a stove on boards, keeping them turned and syringed until every eye started—in all twenty-four; I then cut them into twenty-four sets, and again laid them in the same border with the eye downwards, and in the course of a week, each had rooted well. I then planted them in my garden, in two rows, 3 feet apart in the row, and 4 feet from row to row—rather an unusual distance to plant Potatoes. My object was to give them the best chance I possibly could, and to layer them when ready. I have not done so, however; and, as they are touching each other on all sides, I have no chance of doing so to advantage. They are by far the healthiest-looking Potatoes which I have; and from the number of shoots from each set, anyone would imagine twenty-four Potatoes had been planted instead of one. At digging-time, I should like to compare results with those of others; but, in the meantime, I may safely say that I never saw any Potato look so promising. I have here, in new ground, a large number of Potatoes of various sorts, and among them, Early Rose and Sutton's Red-skin Flour-ball, both badly affected with what I believe to be what is called the new disease. The haulm has turned curly and black, and the roots are quite rotten, although all were small Potatoes, and had become well established.—J. M., *Old Sneed Park, Bristol.*

Remedy for the Turnip Fly.—Mr. E. Umbers, of Wappenbury, Leamington, communicates to the "Mark Lane Express," the following remedy or preventive, declaring that it has been regularly used by himself and friends for the last thirty years, and that he has never known an instance of failure during that period, when the seed was properly prepared. Receipt:—To 1 gallon of chamber-lye add 2 ounces of tincture of assafœtida. Soak the seed in this mixture twenty-four hours, and dry it in the shade. It is very necessary to attend strictly to the drying—the object being for the seed to absorb the liquor, which takes a considerable time if done properly in the shade; the sun's rays or drying winds prove fatal to the receipt. Care must also be taken to have the chamber-lye free from slops. The gallon mentioned in this receipt will prepare 16 pounds of seed.

NOTES AND QUESTIONS ON THE KITCHEN GARDEN

Fillbasket Peas.—After three years experience I find no Peas to equal Fillbasket. The size of the pods (filled tightly as drums), the great weight of the crop, and, lastly, the excellent flavour, all render this Pea the best that could be grown for market purposes.—R. Gilbert, *Burghley.*

Early Snowball Cauliflower.—This is one of the best of Cauliflowers. Its characteristics are earliness, dwarfness, and closeness of head, which is solid and white. March-raised plants of it begin to head by the middle of June. I have cut beautiful heads from plants in twelve weeks from seed sown early in July. When cooked it is soft and tender.—A. D.

Picking off Potato Blossoms.—This should only be done in the case of such kinds as bear fruit so abundantly as to weigh the haulm to the ground, and exhaust the plant. As a rule, however, not one-third of the kinds grown are free-seeders. In order to test the effects of picking off the blossoms upon the future crop, a kind should be selected that is a large seed-producer.—A. D.

Supplanter Pea.—This is one of the best new Peas I have tried for some years. It is dwarf in habit, vigorous in growth, and a heavy cropper, many of the pods containing nine Peas. I have just had a small dish cooked; they are of a beautiful dark green colour when boiled, and good in flavour. This Pea, from its dwarf, sturdy habit, will be found especially valuable for small gardens.—E. Hobday, *Ramsey Abbey.*

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Sowing Cabbage.—Those who have not had an opportunity of observing the marked influence which the difference of a few days in sowing the seeds of some vegetables exercises over the future crop are apt to smile at the fixed dates which the last generation of gardeners used to have for sowing in spring and autumn. A little reflection will convince anyone that the difference of a single day or two in committing the seed to the ground cannot be of vital importance; yet, it is well not to treat old customs too lightly. The object which those who have preceded us had in view in fixing arbitrary dates was simply to prevent either too early or too late sowing, and thus ensure punctuality. For instance, in sowing Cabbage seed during the present month for the early spring supply, a difference of ten days has an important influence upon the time when the crop will be ready, and also affects the varieties grown. In the northern parts of the kingdom, where hardy sorts, such as the Enfield Market, stand the winter best, the seeds of these should be sown as soon as the 20th of the present month is passed; delay beyond this will cause the crop to be fit for use later in the spring. If sown sooner, many of the plants will run to seed, instead of hearting at the proper time. Where early varieties, such as the York, are grown, they must not be sown until eight or ten days later, or the plants will bolt. In the southern parts of the kingdom, Cabbages should be sown a week later than the above dates, the later kinds being put in first, and the earliest last. Where these directions are followed, the disappointment of seeding instead of hearting will not be experienced. Select an open situation, where the plants, from the time they are up, will get plenty of light and air, for the drawn and weakly plants sown near trees or high walls are not calculated to stand a severe winter.

Celery and Scarlet Runners.—Where the seeds of Celery were sown early and the plants prepared as directed, with a view to obtaining an early supply, they will now be growing fast. The showery weather we have had has been favourable to the growth of this moisture-loving vegetable, and, where the ground was well enriched, there will not have been any necessity for watering; but, where there has been a deficiency of manure, weekly applications of manure-water will be required. Should Celery become at all affected with greenfly, to which it is very subject if grown near anything else that is troubled with the insect, its presence will be indicated by the leaves curling up and an unhealthy stunted appearance of the plants. So soon as any aphides are found give a good washing with soapy water from the wash-house, applying it with the syringe. To be effectual, like all other applications of a similar nature, it must reach every part of the plants above ground, for, even upon such portions of the leaves as harbour no living insects, it is more than likely that there are eggs which will quickly come to life. Should the fly not be killed by one dressing, give a second within a few days. Scarlet Runners grown without sticks should have their shoots repeatedly nipped out as they push up; this will induce them to break afresh and continue flowering.

Gladioluses and Marigolds.—A slight mulching of an inch or so of rotten manure over the surface of Gladiolus beds will benefit them, and will help to keep the soil moist and the roots cool, which has a considerable influence in preventing the disease. Tie the plants up before they get so large as to be acted upon by the wind, using for this purpose a neat stick, such as a stout dry Willow or Hazel, the thickness of one's finger; and be careful, when inserting it, not to thrust it down so near the roots as to injure them. There are few more handsome and continuous border flowers than the French Marigold, blooming, as it does, from the present time until it is cut down by frost. Those who happen to have a good strain of striped or edged kinds, should now, as the plants come into flower, remove all that are single or semi-double. This not only greatly improves the appearance of what are left, but is also necessary in saving seed which is deteriorated by the presence of poor flowers. No seed should be saved, except from the best double blooms. If the strain is too dark, or does not possess a sufficient number of the rich yellow-striped forms, or is deficient in size, a few plants of the African Yellow should be grown near, or amongst, them. These will cross with and improve the French varieties, both in colour and size; but this must not be repeated every year, or they will become too yellow.

Asters.—Do not allow these to grow too thickly, or the flowers will be small, and the plants soon become exhausted. If they show signs of weakness, through the ground not being rich enough, assist them with manure-water. There is no plant less able than Asters to bear the effect of aphides, whose presence is easily detected by the leaves curling up. A good washing with tobacco-water is the best remedy, and this should be applied as soon as the insects are detected, or the plants will be irreparably spoilt. The tall-growing kinds, if at all in an exposed situation, will require a small stick and tie to each plant.

Phloxes.—These beautiful summer-flowering occupants of the herbaceous border, if grown in a situation where the roots of deciduous trees or evergreens can interfere with them, require the assistance of plenty of water at and about the time of their opening their flowers. They are strong-rooted plants, and need a good deal of sustenance; if allowed to become dry they are sure to suffer from the attacks of black thrips, which get into and spoil the flowers as soon as they open. Any plant, either flowering or fruit-bearing, grown in the open air, that is attacked with thrips, black or yellow, can only be relieved from them by continuous use of the syringe or garden-engine, for they will not remain where there is much moisture. Plants that are allowed to flag through want of water at the root appear most liable to their attacks.

Chrysanthemums, &c.—Grown up to walls or in beds, these, as large masses of roots are developed, will, even if the weather be showery, require water, unless in exceptionally damp situations, otherwise the lower leaves will suffer. Apply liquid manure alternately with fresh water, and continue the use of the syringe overhead on the evenings of bright days. Give the necessary supports by sticks and ties to such as are in the open ground—those trained against walls may be secured by a string run horizontally along every third course of bricks and fastened to nails driven in at intervals. Spread the shoots out fan-fashion—in this way they will flower without injury from frost, the wall affording them sufficient protection; and, even should the weather at the time of blooming be very severe, in such positions they are easily protected. An essential where Chrysanthemums are grown up to a wall, where they are, in a great measure, dependant for moisture upon what they receive by hand, is to water them regularly without stint. Plants that were potted at the time directed will now be fast filling the soil with their roots, and should have manure-water twice a-week, but do not, as yet, apply it so strong as when the flowers are set. On no account allow the plants to flag for want of water, or the leaves will suffer at the base of the shoots. The useful winter-flowering Salvia splendens should now receive attention. If they are not, as yet, in their flowering pots, move them into these at once; a 10 or 12-inch pot will be large enough. Tie the shoots well out, stopping the leaders so as to direct the strength to the weaker branches. The Gesnera-flowered Sage (Salvia gesneræflora) is an equally good winter-blooming plant, coming in, if required, later than the last-named sort; it is a stronger grower, and should, in proportion to the size of the plants, have larger pots. These Salvias, like Chrysanthemums, require the constant use of the syringe every afternoon to keep the leaves healthy. They must have their shoots well secured, without which they are sure to be broken by the wind. Campanula pyramidalis grown for greenhouse or window decoration will now be shortly in flower, and should have a good supply of manure-water, or the leaves, if the pots are very full of roots, will turn yellow, which destroys much of their beauty.

Houses—Vineries.—Vines that are swelling off their fruit, and that have all or a portion of their roots in inside borders, require copious waterings; very frequently, when so situated, they do not receive nearly so much as they need. If the drainage is sufficient, so that all which runs through the border can get away, it is not easy to give them too much until the time approaches when the fruit will begin to colour. That most troublesome complaint, shanking, is produced in numerous ways, but oftener through an insufficiency of water at the root than from any other cause. Amateurs must not be led away by the mere appearance of the surface soil being wet, but should make sure that the whole body down to the drainage contains sufficient moisture. Any quick-growing plant, like the Vine, that in so short a time forms much wood and makes such an amount of leaf, not only requires a great quantity of water in the development of its every part, the fruit included, but also to supply the drain from evaporation constantly going on. As the second swelling nears completion, and a little before colouring commences, water should be withheld. Late Vines will require attention in keeping the lateral growths stopped; where they are very strong, these may be removed from the point where they were first stopped; but Vines that are at all weakly should be allowed more leaf surface, by letting the laterals run a couple of joints beyond this point. Keep up plenty of moisture in the atmosphere by damping the floors and walls in the afternoons, and syringing, as advised with the early crops. Be particularly attentive in closing houses in which there are late Grapes sufficiently early in the afternoon to shut in a good heat. This is not only necessary to swell off and mature the crop, but also to ripen the wood for another year. The stronger the Vines are, the more it is necessary to attend to this. One of the greatest difficulties that amateur Grape growers experience is in getting the wood of late Vines sufficiently ripened, and, if means are not taken to accomplish this by sun-heat, it will necessitate the use of fire later on, which is both more expensive and less effectual.

Flower Garden and Pleasure Grounds.

At this season of the year, and during such showery weather as we have recently experienced, trees and shrubs grow so rapidly that the more common and robust kinds are likely to encroach upon their weaker, although sometimes more valuable, neighbours; and this very often causes serious injury before it is observed. Strong shoots are also sometimes produced by the stocks upon which choice varieties have been budded or grafted, and these should be removed at once. If allowed to remain any length of time, they will overpower, and seriously interfere with the development of the more delicate varieties which have been worked upon them. It also happens sometimes that trees and shrubs produce abnormal growths, or sports of various kinds, such as variegated shoots, flowers of a distinct or different colour, &c.; and these, if they are considered sufficiently valuable, may be perpetuated by being budded upon other representatives of the family. Whereas, if not secured in this way, as soon as possible, it is not unlikely that they may revert to the normal condition, and be lost to horticulture. In cases where alterations are contemplated in grounds and gardens, the present is the most suitable time for making notes and observations having reference to these changes, as all trees, &c., have now attained to a mature condition, as regards the hue or colour of their foliage, their habit of growth, &c.; and such notes, made now, will probably be found to be very useful at a later period of the season, when such alterations are being carried out. In selecting trees and shrubs, it is necessary to take into consideration their habit of growth and the form they are likely to assume when they are fully developed, and whether they will be of an upright or drooping habit, or of a round-headed or pyramidal form, &c.; and, with a view to secure the desired effect in grouping, or arrangement, the hue and form of leaf should also have attention given them. There is also another very important point which should not be lost sight of, viz., that of selecting plants that are likely to thrive in the soil and situation where it is intended they should be planted. In the case of newly-introduced species this can only be ascertained by experiment, and this will generally be upon a somewhat limited scale. But it would, doubtless, be unwise to form extensive plantations of Rhododendrons and other American plants upon a soil resting upon a chalk formation, or to plant freely such Coniferous trees as the Abies canadensis, Menziesii, and Douglasii, upon a light dry soil. Attend to the usual routine operations of mowing, sweeping, rolling, weeding, &c., the frequent falls of rain having been exceedingly favourable to the growth of weeds of all kinds. Attend also to staking and tying up tall-growing plants, as well as to training and regulating dwarf or trailing species. Proceed with the budding of Roses, the layering of Carnations, Cloves, and Picotees, &c.; put in, also, pipings of Pinks, cuttings of Pansies, &c., under hand-glasses; and, as the flower garden is rapidly reaching the zenith of its beauty, avoid anything like untidiness or confusion, which, if permitted, will seriously mar the pleasing effect which is now expected.—P. Grieve, *Culford, Bury St. Edmunds.*

Hardy Fruit.

A more critical period for fruit-gathering than the present season has been it would be difficult to conceive, and it is to be feared that the heavy and oft-repeated showers have rendered much fruit useless for preserving; at any rate, none should be gathered for this purpose, unless perfectly dry, or the fruit will not keep. Protect with mats or netting any Currants or Gooseberries intended for the autumn supply. From trees of the former, trained to a north wall, sheltered from rain and protected with mats, we have occasionally gathered good fruit on Christmas Day, and always have had an abundant supply during October and November. Caterpillars having at length put in an appearance on Gooseberry and Currant bushes, the whole of our trees have been hand-picked, as this is considered the best remedy, but a dusting of white hellebore powder, if not washed off too soon, is equally effective. It will now be safe to stop finally, or cut back, the shoots of Apples, Pears, Plums, and Apricots. Sometimes, when done too early, a second wood growth is made, instead of the formation of fruit-buds. Where such second growth has been made, spur them in at once, to within two or three joints of the base of the shoot. Continue to wash the trees, in order to keep them free from insects of every description. Frequently, after the fruit is gathered, the trees are left to themselves; but, when the fact is generally understood, that next year's supply of fruit must depend upon the trees being kept free from insects during the present year, and the useless spray and shoots constantly cut or stopped, so as to expose the fruit spurs to the action of the sun and air, no labour will be spared to accomplish this. Other kinds of fruit—Peaches, for instance—that fruit best on the young wood should have a sufficient number trained, nailed, or tied in, for next year's fruiting; above all, the branches must not be overcrowded. Should dry weather set in, it will be advisable to water freely such choice fruits as Peaches, Nectarines, and valued kinds of Pears, but previously mulch with rotten dung, and the enriching property of the manure will then be washed down to the roots of the trees and its action be perceptible in an incredibly short space of time. The layering of Strawberry runners should be no longer delayed, more especially if they are intended for forcing; the early maturation of the plants or crowns is the main-spring of successful Strawberry forcing. Also, layer runners for planting out for next year's fruiting; or, if there are any old forced plants at command, these make the most profitable plantation for next year's supply. Trench deeply and manure freely, and let the rows be a yard apart and at least 2 feet from plant to plant. The kinds that have done best this season on our light sandy soil are the following, named in the order of merit:—James Veitch, La Grosse Sucrée, Vicomtesse Héricart de Thury, President, Aromatic, Lucas, and John Powell. Dr. Hogg and British Queen—though, as a rule, better in flavour than any of the above (excepting James Veitch)—do not succeed with us, and we are seriously thinking of giving up their culture; whilst, in a neighbouring garden, where the soil is more retentive, they are so good that the determination has been made to grow them still more largely.—W. Wildsmith, *Heckfield.*

Trees and Shrubs.

The present season has been exceedingly favourable for all recently transplanted trees and shrubs, and little labour will now be required to get them thoroughly established. Plenty of protection over the roots should be given them in the way of mulching; for, should dry weather now set in, of which there is every prospect, evaporation will go on at a rapid rate, and the roots of freshly-planted specimens soon suffer, unless precautions are taken against it. Many beautiful variegated plants which are quite hardy and may be grown in most places with good effect are, unfortunately, rarely to be met with as yet. Most of these are almost as free-growing and vigorous as the other forms, and this is especially the case if they are worked on strong, healthy stocks. The foliage of these is now fresh and in full beauty, and the present is an excellent time for making selections, so as to have them ready at planting-time. For those who have not an opportunity of seeing them growing, I append a list of some of the best kinds. The Euonymuses, although not strictly hardy, will stand the cold of ordinary winters, and are amongst the most beautiful of variegated shrubs, many of the newer varieties almost equalling for richness of leaf colouring (especially if grown under glass for winter decoration, for which purpose they are most useful) the Crotons, for which they are substituted. Any of the following are sure to please:—E. aureus marginatus, E. a. variegatus, E. ovatus aureus variegatus, E. elegans variegatus. Next, as regards usefulness, are the different forms of Hedera, and those who have collections of these cannot fail to be struck with their beauty. To have the variegated Ivies in perfection, it is necessary that they should have shade during the greater part of the day. They are very beautiful on red walls having a north or north-east aspect, as there they show off their rich colours to great advantage, and are not liable to become infested with red spider, as is the case if grown on aspects too much exposed to the rays of the sun. The best of these are Helix chrysophylla, H. foliis argentea rubra, H. maculata aurea and elegantissima. For compact specimens on lawns, the Gold and Silver Yews are unapproachable, and, in the early spring or summer months, might easily, in the distance, be taken for plants in bloom, so rich is the colour of their young leaves. For similar positions, Retinospora aurea and Thuja aurea are most valuable. For covering sloping banks, the different Vincas are the most suitable; and to these may be added the pretty variegated Bramble. Eurya latifolia variegata is a very handsome plant, and is said to be quite hardy. Next to the Hollies, and much resembling them, are the Osmanthus argenteus and variegatus aureus, both of medium growth, and very handsome, but not sufficiently hardy to be depended upon. Aralia Sieboldi variegata is a strikingly beautiful plant, with leaves as large as those of a Fig tree, which they somwhat resemble. To grow it in perfection, it requires a sheltered situation. Among deciduous plants, the Acer occupies, as regards ornamental value, a very prominent position; whilst A. fraxinifolium albo-variegatum is one of the handsomest variegated plants in existence, the delicacy of whose markings is much increased by growing it under glass, where it forms one of the most useful of decorative plants in early spring and summer. Ligustrum aureo variegatum has beautifully marked leaves, and shows to great advantage backed up by dark evergreens. Cornus mascula variegata is a very ornamental, compact growing plant, that should be in every collection. Ulmus variegata and U. aurea Rosselsi are very beautiful during the early summer months, before the leaves become discoloured; these should be planted in moist situations, as the Elm does not succeed in dry soils. For rambling over blocks or trellises, the variegated Vine and Lonicera aurea reticulata are perfectly adapted, and the latter, if allowed free scope and plenty of sunshine, flowers freely, and proves to be one of the sweetest scented of Honeysuckles. All the above, and many other variegated trees and shrubs may now be increased either by budding, cuttings, or layers, and the present is the proper time for putting into practice any one of these methods of propagation. If by budding, choice should be made of healthy free-growing stocks for the different kinds, and, before taking off the buds, it should first be ascertained that the bark runs freely, so that they may be easily inserted, and kept well supplied with sap till union takes place. The wood from which the buds are taken should be tolerably firm and mature; if taken from soft sappy wood they are sure to fail. After inserting the buds, tie carefully in with soft cotton, or material of a similar character, but not bind too tightly. In layering, shoots such as may be readily brought to the ground should be selected, and an incision made with a sharp knife at one of the joints to be buried, commencing just below, and continuing the same through the joint in an upward direction, so as to split the shoot near the middle, and form a sort of tongue. The operator is thus enabled to bend up the shoot, and the sap being interrupted in its progress, will exude at the wound, and form granulating matter, or callus, from which the roots will be emitted. To keep the slit partly open, the shoot, after being layered and pegged to the ground, should be brought to an upright position, and the cut part buried to the depth of 3 or 4 inches. Twisting the branch, and ringing, by taking off a portion of the bark before layering is sometimes resorted to, but the practice I have described will, I think, be found the best.—J. Sheppard, *Wolverstone.*

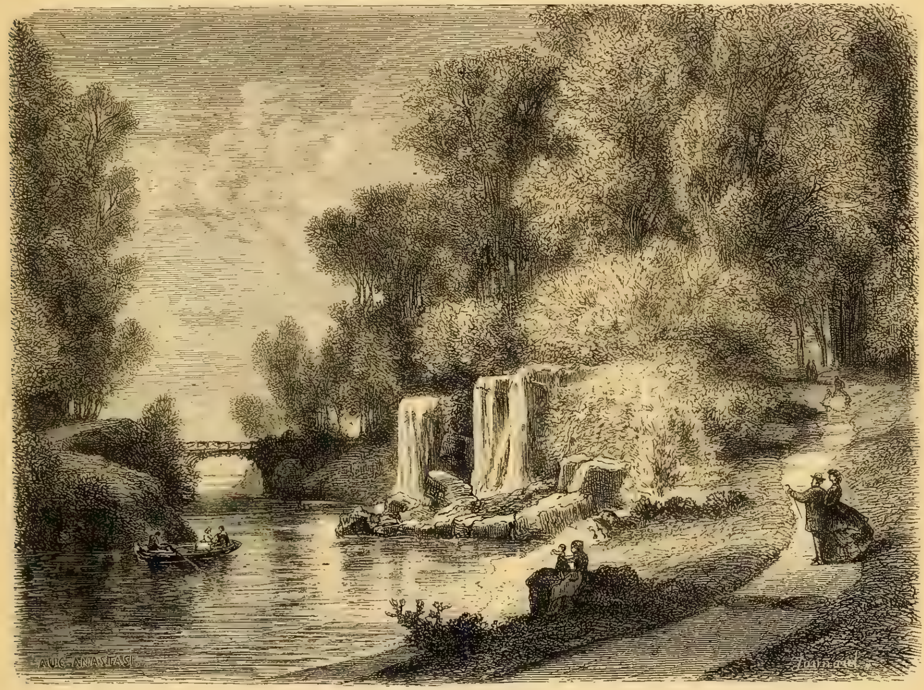
FLOWER TRAPS.

As far as we can gather, the years which have followed Mr. Darwin's announcement and verification of the great principle of "natural selection" as an efficient cause of changes of type in the various species of plants and animals, have tended, in the minds of the greatest living naturalists, to prove that, though a very powerful cause, it is not by any means the only one which has been at work in effecting those changes, and that it will not be possible ultimately to explain many of the curiosities of organic life by the service which those organic modifications have even at any time rendered to the species to which they belonged. An illustration of the tendency to diverge from Mr. Darwin, not, of course, in relation to the great influence which the principle he has discovered has had in altering organic types, but as to the extent of the principle, is afforded by a very interesting lecture, recently delivered by Mr. Lawson Tait, at Birmingham, on "Insectivorous Plants," that is, on those curious flower-traps to which so much attention has lately been drawn—flowers in which insects are not only caught and killed, but in some cases at least digested. Mr. Lawson Tait, however, holds that there are species of plants which catch insects without digesting them, and that even when they digest the insects caught, this digestion is not followed by any such direct advantage to the plant as we derive from nutrition, *i.e.*, from the assimilation of our food. "It must not be supposed, he writes, "that every fly-trap is a fly-digester, still less must it be taken for granted, as it has been too readily in the case of the Sarracenia, that fly digestion must necessarily mean absorption of the products. In fact, direct absorption of the products by the leaves is so hypothetical, that I am inclined to disbelieve it altogether. I know Mr. Darwin is inclined to accept it, but I do not know on what grounds." And he added at the end of the lecture, "What becomes of the products of digestion is a problem still unsolved, and on this point Mr. Darwin and I differ. Mr. Darwin is of opinion that the leaves absorb the products of digestion. I thought so at first, but I have failed to find any evidence of absorption by the surface of the leaves. On the other hand, my experiments tend to show that the products of digestion run down the leaf-stalk to the roots, and are there absorbed as manure is." Of course, if that be so, the roots may assimilate a portion of the fluid in which the insect has been digested, though much of it may be wasted in the soil, but even if the manuring of the roots by these digested insects is useful to the growth of the plant, it can hardly be of the same importance to it as it would be if the whole products of digestion were, as Mr. Darwin supposed, absorbed by the leaves. And in the cases mentioned by Mr. Lawson Tait, in which the flower-traps catch the insects without digesting them at all, it is still less likely that the trap is essential to the health and growth of the plant, and, therefore, that it has been gradually elaborated by the process of natural selection through the benefit it has thus conferred. Indeed, the cases are not few in which it is admitted to be, in the present state of our knowledge, impossible to ascribe particular organic modifications to the principle of natural selection. In his first treatise on the subject, Mr. Darwin himself, if we remember rightly, admitted very candidly that there were many cases in which natural selection could hardly be supposed to account for the elaboration of a particular organic structure, for the very simple reason that, as in the quadruped's tail, which is of service in flapping away insects, it would not be useful at all till it had already attained a certain completeness and magnitude, so that the initial stages of growth could not be ascribed to the advantages it bestowed. And the same may be said in relation to these flower-traps, even if they do contribute to the food of the plant. Till the trap was perfect enough to catch an insect, it could be of no use in catching insects, and a perfect trap could not be elaborated all at once. Indeed, if Mr. Lawson Tait is right, it would seem that the insect-catching plants are not always insectivorous plants, and that even the insectivorous plants often appropriate only a certain proportion, if any, of the products of the insects thus digested. We do not know, indeed, why there should be any disposition at all to believe that in the natural world the only ultimate cause of faculty is the utility of that faculty. That usefulness is one cause, and a most important cause, of the growth of useful characteristics, Mr. Darwin has admirably shown. But is there the least *à priori* presumption that this may be the only cause? If we were to discover for certain that there are flower-traps which get no sort of advantage out of their insect-prey, would it be at all more surprising than the fact that there are so many human traps in the shape of longings and desires—for instance, according to most physiologists, the appetite for fermented liquors—which bring no advantage, but almost pure mischief, to the creatures whose natures contain these traps, and who take such pains to bait them skilfully. There are flower-traps which are fatal enough to men, as well as the flower-traps which are so fatal to insects, and traps of which it would not be difficult to show that the victims are never either digested or absorbed by the living trap which catches them. Avarice—the love of money for its own sake, and not for the sake of the advantages which it brings—is certainly such a trap, though not of the most flowery kind, and one which closes on its prey without bringing anything but harm to the subject of the passion. Almost all the occupations which most absorb men and devour their hearts, the love of gambling, the delight in mere intellectual dexterity—such as is shown, for instance, in the passion for billiards or chess—nay, the love of music itself, is more or less of this nature.—"Spectator." [It is well to notice some slight opposition to the mass of not quite scientific matter that has been written about "carnivorous" plants, to use a word that has been, as we think, made an injudicious use of. We have been as much interested as most people by fly-catching plants, both in a wild and cultivated state, and we should gladly welcome any sound explanation of any of the curiosities they present, but we do not think that as yet there is any proof that plants "eat insects" in the way recently so often described. Moreover, if it were demonstrated that some plants do "digest" insects as asserted we cannot see how it can elucidate any problems of "natural selection." That plants eat abundantly, and thoroughly digest, animal matter when within reach of their roots, is of course known to everybody. To discover that the surface of the plant, besides the root, has the power of absorbing similar matter, would not carry us a step further, as regards any important problem of philosophy.]

A Botanical Astrologer.—At an inquest held recently at Marshfield, on the body of a man named George Edward Woodham, one of the witnesses examined—William Bigwood—stated that he was a "licensed botanist," and in that capacity had been called in to see the deceased, whom he was constrained to tell that it would be like "rising him from the dead" to make him well; but, as he particularly requested him to do so, "he would try." His efforts commenced on May 11th, and were terminated on June 5th by the death of the patient—a catastrophe which the "botanist" attributed to the fact "that the deceased was not born when the sun was in opposition sign to his stomach, but when it was in afflicting sign to that organ." As he worked "on the botanist scale through astrology," he was enabled to deduce from these facts that "the liver of deceased would not act properly." Fortunately for the "botanist," the evidence of a properly qualified medical practitioner showed that he also had attended deceased some time before his decease, and that the disease he was then suffering from was a tubercle on the right lung. Under these circumstances the verdict of the jury was "death from natural causes;" but they expressed a wish that the coroner would severely censure the "botanist," William Bigwood, and tell him that he had had a very narrow escape of being committed to Gloucester on a charge of manslaughter.

GARDEN BRIDGES.

A bridge in connection with ornamental water seldom fails to give interest to the landscape, and should be placed to front the best point of view, or nearly so. In forming a piece of water, a narrow neck may be contrived either between an island and the outline of the lake, or the whole piece must be so contracted that the bridge shall not be too long or extensive. But as a park bridge may tend also to give an idea contrary to the repose and privacy which a lake generally suggests, its position should be carefully chosen. At all events, it should be placed so as to give as much of the lake as possible on the side between it and the principal point of view from the residence; because a bridge suggests the idea of a public road, and a public road would naturally fix, as it were, the boundary of the park or domain, and lead to the conclusion that the water beyond it may not belong to the domain. Perhaps the best position would be at some narrow part of the lake, as remote as convenient, so as to show the principal body of water between the bridge and the place from whence it is viewed, and that, whilst crossing the bridge, the boundary of the water should be completely lost to the eye in various parts, as well by its position as by judicious planting. Thus the extent of a moderate sheet of water might be concealed, even from the stroller crossing the bridge. I have frequently seen a bridge placed across the neck of a lake, so near to its extremity as to suggest to the spectator whether it could have been formed for any utility at all, thus destroying the interest which might have been created had its utility been more apparent. Of whatever a bridge may be composed, whether of wood, iron or stone, or whatever extent it may be, it should be generally horizontal or level across. The effect is inharmonious when it falls each way from the centre. A bridge of masonry is best adapted for a river, on account of the probability of its use by public conveyances; therefore, the appearance of strength would be appropriate. In this case, as in all others, a bridge will have its importance and usefulness increased when viewed from any principal point, by a connecting walk or road being more or less seen not far from it; at least so near as to seem to lead to it, and leave no doubt on the mind as to its utility. The kind of bridge most suitable for a walk interrupted by a rivulet or brook, in a wood or other rural or uncultivated scenery, is one simply formed of rude woodwork. When a walk can be carried across a rivulet in front of a cascade or fall, about 10 or 20 yards distant from it, a bridge will add interest to the scenery, and afford convenience to the spectator in viewing the fall. A bridge crossing a rill in a flower garden or other dressed parts of the pleasure grounds may be of iron; but one constructed of Larch rods and poles stripped of their bark, and stained—not painted—though less characteristic, would be generally pleasing. This kind of bridge would also be proper for a lake, with a number of arches according to extent, unless the drive should cross an extensive lake; then a more substantial bridge of masonry, with stone battlements, would be more appropriate. Where stone is scarce, stone piers may be finished with strong rustic wood battlements, or battlements of a more finished character may be substituted for stone. A drive interrupted by a brook in the park or elsewhere should have a bridge of masonry, as it harmonises with any kind of landscape, whether rural or picturesque, or of gentle or abrupt undulations. In abrupt rocky scenery a simple stone bridge would be better than any other kind. However, in lieu of stone, a solid bridge of strong Larch of the above kind may be formed. I should recommend that the wood bridges be made of peeled poles and rods, stained Oak colour, or something similar. Iron



bridges should be painted (perhaps bronzed) green or iron colour; never light green. The ends of all bridges must be finished off with trees or bushes. Those upon a large scale should have noble round-headed trees for their decorations, such as the Wych and English Elm, Weeping Willow, Lime, Oak, and Alder; but the best of all is the Wych Elm. All should be more or less associated with loose-growing bushes. For smaller bridges in kept grounds the Hemlock Spruce, deciduous Cypress, Tamarisk, Robinia microphilla, Sea Buckthorn, Rosemary-leaved Willow, English Juniper, &c. For small bridges in wild scenery:—Alders, Willows, Thorns, Hollies, Honeysuckles, rambling Roses, Brooms, and Whins, are suitable. M.

TREES AND SHRUBS.

A REMARKABLE COLLECTION OF TREES AND SHRUBS.

THE "Journal of the Central Horticultural Society" of France contains the report of a commission appointed by that association to examine the magnificent collection of trees and shrubs at Segrais, the property of its secretary, M. Lavallée. The report is drawn up by M. B. Verlot, who writes as follows:—"France, which some are apt to place after England and Belgium as regards arboriculture, has furnished a number of instances where that science has found votaries who rank as high as those of any country; and when it is a question of gathering together, for the purpose of study, the greatest possible number of species and varieties, without taking into consideration their beauty or usefulness, in order to compare the living specimens one with the other, and determine their generic or specific characters the names which France can boast of have few rivals. Amongst the foremost of these must be placed that of the illustrious Duhamel, who, at the end of the last century, brought together in the parks of Vigny, Demainvilliers, and Monçeau (Loiret) collections of American trees, which, at the present time, have unfortunately nearly all disappeared. In our own days, names may be mentioned that are familiar to all who are lovers of plants. M. G. Thuret, correspondent of the "Academy of Sciences," whose unexpected death took place not long since, amassed at his property at Antibes a very extensive collection of trees and shrubs from the Southern Hemisphere. M. Ivoy, in Gironde, and M. G. de Lauzane, at Porzantrès, have devoted themselves to collecting resinous trees; M. Herpin de Frémont, at Brix, Conifers and Bamboos; and M. Daudin, at Pouilly, near Meru (Oise), ornamental trees and shrubs. From a utilitarian point of view, the collections of the Vicomte de Courval, at Pinon; of Vilmorin, at Barres, which has become a state arboricultural school; of Delamarre, at Harcourt, which has been bequeathed to the Central Horticultural Society of France; and of the Marquis de Vibraye, at Cheverny; have given to their owners a well-deserved reputation. To these names must be added that of M. Lavallée, who, at his Château of Segrais, has made the collection of trees and shrubs, upon which the Commission just alluded to have had to report. The domain of Segrais, acquired in 1856 by the father of the present M. Lavallée, the founder and director of the Central School of Arts and Manufactures, is situated in the department of Seine-et-Oise, close to the Breuillet station on the Vendôme line, and comprises not less than 75 acres. Admirably situated upon a slope, and at the base of a hill formed of the Fontainbleau sandstone, and crowned by an old clump of Scotch Fir (Pinus sylvestris), it forms what may be termed a landscape garden, which, from the diversity of its soil, the abundance of water, and the vigour of the native vegetation, is admirably adapted for the reception of the trees and shrubs of temperate climates. A dwelling-house placed in the centre, faces on one side the valley, and, at the back, is separated from the hill by a lawn and sheet of water. On the margin of the latter are two old deciduous Cypresses, furnished plentifully with what are called Cypress knees, and some superb Tulip trees. The property has, moreover, long contained many interesting trees, not only belonging to the Coniferous tribe, but also others, such as Carya squamosa, a species of Hickory; a singular form of Walnut, with elongated fruit (Juglans Segraisiensis), and various kinds of Ash, such as Fraximus pubescens; and others. A kitchen and flower garden, with hothouses and Orangeries, situated between the château and the village of St. Sulpice are remarkable for the excellent way in which they are kept. The formation of the arboretum was commenced in 1857, but it was not until 1858 that any great progress was made with it. In the autumn of that year a nursery was devoted to shrubs and trees, which were planted out permanently in the spring of 1859. The number of species and varieties at that time was about 3,000, but many disappeared after the winter of 1859-60, when the cold was unusually severe. After 1860 the trees were planted no longer in clumps but in nursery lines, in order to test their hardiness, with the exception of Willows, Gleditschias, and Elms, and a few others. The Sycamores and Maples, which were planted in an unfavourable position were re-planted in 1864, as were also many other ornamental trees. The single genus Cratægus, which, at that time, was represented by twenty-one specimens, now numbers eighty-three. Transplantation was also performed the following year in the case of the collections of Poplars and Chestnuts; and, in 1872, it was also found necessary to regulate those of the Ashes and Birches which were evidently suffering from too much humidity in the soil. The collection of Conifers, to which a larger area is devoted, had also to be re-arranged, as had also the collections of shrubs and other things, the space allotted to which, in the first instance, was much too small. Single specimens were also given sufficient room in which to develop their natural characters, uninterfered with by their neighbours. In short, the crowding together that at first existed would have led to interminable confusion, if in 1868 the genera Sambucus, Rhus, Prunus, and Cerasus, had not been, for the most part transferred, from what may be called the nursery, to the park. But this was only a half measure, and, as the shrub department was always on the increase, it was soon determined to make a new nursery for them, six times as large as the original one, and which should cover 5 acres. This was rapidly formed, and was planted in March, 1874. It forms at the extremity of the park, nearest St. Sulpice, a large triangle, of which the base is 155 yards. This superficies is divided into twelve large squares, separated from each other by alleys, from 6 to 9 feet wide. The entire nursery is divided into 660 borders, 5 feet wide, planted with a single row, the length of which is a little more than 5,500 yards, and which are separated by paths a yard wide. The whole nursery is encircled by a wide border, reserved on the north and east for Magnolias, Heaths, Vacciniums, Hydrangeas, Skimmias, and other species requiring a light dry soil. These special collections occupy a length of about 225 yards. In the south and west, this border is devoted to the garden varieties of Hibiscus syriacus, Syringa, Weigela, &c., and to collections of Birches and Mulberries. The two last-named are the only kinds of large trees that are collected in the new nursery, which, it will be remembered, contains for the most part shrubs. Other kind of trees have been placed in different parts of the park, in avenues, and in other ways in which they can be readily inspected. Among them are Oaks, both of America and the Old World, consisting of not less than 110 species or varieties; Sycamores and Maples, seventy species and varieties, Japanese kinds excepted. Hawthorns, eighty-three distinct kinds; Beam trees, twenty-six; Apple trees, twenty-three; Pears, nineteen; and eighteen Service trees. The number of Ulmaceous trees (Planera and Ulmus) amounts to about fifty-nine. Ashes and Poplars line the banks on both sides of a river to a distance of about 220 yards. Among the Poplars are thirty-five distinct varieties, whilst the Ashes number some eighty-eight kinds. Lime trees, of which there are some twenty-three varieties, are planted in alternate rows along an avenue 130 yards in length. Plums and Cerasus are planted in three or four rows under the same conditions down an avenue 120 yards in length, and number altogether 133; Pinus, Abies, Picea, and Thuja, are planted round a field, the circumference of which is about 160 yards. Of the genus Pinus there are eighty-seven varieties, six of which belong to the Cembra class, eleven to that of Strobus, three to Strobiformis, nineteen to Tœda, four to Pinea, and forty-four to Pinaster. The varieties of Abies number thirty-two, those of Picea fifty-seven, Thujas nine, in all ninety-eight distinct kinds. Other hardy Conifers are thus represented:—Yews, twenty-seven; Cedars, eight; Junipers, sixty-one; and Cypresses, twenty-three; of Papilionaceous trees, such as the Robinia and Laburnum, there are many excellent representations as well as of Plane trees and Hornbeam. Amongst shrubs, Berberises number fewer than fifty-seven varieties; Mahonias, twenty-two; Hollies, 109; Spiræas, 102; Roses, 136, of which about twenty unnamed come from the Caucasus and Japan; Chamæcerasus, forty-eight; Honeysuckles, fifty-eight; Guelder Roses, fifty-one; flowering Currants, fifty-seven; Rhamnus, thirty-two; and, lastly, Philadelphus, fifty-five. Shrubs in the nursery amount in all to 2,472 species and varieties, and trees to 2,107. The numbers of both cultivated at Segrais when a return was made in 1874 were 4,579. This number does not include certain garden varieties, such as Roses and others, that have altered greatly in form from the original type. The same may be said of cultivated fruit trees, which are numerous and varied, but which are not comprised in the returns just given. The collection of American Vines is not the least interesting feature of the place. It comprises sixty-nine kinds, thirty-four of which belong to Vitis labrusca, one of doubtful origin; two to V. vinifera; three to V. æstivalis; five to V. cordifolia; one a hybrid between

V. labrusca and vinifera; twelve Roger's seedling; one Allen's Hybrid, a curious form of the common Chasselas; and, lastly, eleven varieties, little or not all known. In short, the examination of the Arboricultural collections at Segrais showed that some genera were as fully represented there as in some of the best Botanic Gardens in the country, and that even numbers of trees and shrubs obtained direct from their native homes are to be found in it which are rarely met with elsewhere. This, for example, is the case with a large number of Japanese, Mexican, Rocky Mountain, and Caucasian specimens. Genera as those of Berberis, Euonymous, and Cratægus, have been subjects of special attention, a circumstance which has served the double purpose of avoiding many duplicate names and of rectifying incorrect nomenclature. Of Segrais, a correct plan has been prepared upon a large scale, and on this every individual species or variety is represented by a number which corresponds with that of a catalogue in which their history is given. Thus on the plan we find 100A, and opposite that number in the catalogue is written, "Acer Negundo cissifolium, Sieb. et Zucc.," which is stated to have been planted in 1866, to have come from the establishment founded at Leyden, by Von Siebold, and to have been grafted; to these entries is also added an account of its botanical characteristics. To each specimen in the arboretum, too, is attached a large square label showing its specific name, the country whence it came, and the date of its introduction. A catalogue of the trees and shrubs at Segrais will be published before long, and will be followed by "The Segrais Arboretum," a large work in which will be described and figured new and rare species. About thirty of the plates are already engraved and ready. Amongst the most remarkable species at this place the following may be mentioned :

- Clematis
  - biternata
  - stans
- Bambusa
  - Maximowiczii
- Lindera
  - hypoglauca
- Elægnus
  - longipes
- Deeringia
  - celosioides
- Fontanesia
  - Fortunei
- Ligustrum
  - japonicum
  - var. macrophyllum
- Syringa
  - oblata
- Pterostyrax
  - hispidum
- Lonicera (Chamæcerasus)
  - chrysantha
  - Ruprechtii
- Symphoricarpos
  - mexicanus
- Viburnum
  - Oxycoccos
  - nudum
  - dilatatum
  - erosum
  - himalayense
- Cornus
  - florida
- Corylopsis
  - spicata
- Parrotia
  - persica
- Hamamelis
  - arborea
  - japonica
- Jamesia
  - americana
- Ribes
  - oregonense
  - fasciculatum
  - Menziesii
- Marlea
  - bryoniæfolia
- Aria
  - Segraisiensis
  - Chamæmespilus
  - Hostii
- Malus
  - Ringo
  - Toringo
- Pyrus
  - sinensis
    - var. Daringo
    - Mikado
    - Sieboldi
  - cydoniæformis
  - Pashia
- Mespilus
  - Smithii (Cratægus) lobata
- Cratægus
  - leucophlæos
  - tomentosa
  - cuneata
  - pinnatifida
  - Douglasii
  - (Pyracantha) crenulata
- Rosa
  - rugosa
  - Iwara
  - diversifolia var. japonica
  - polyantha
  - Fortunei
  - coruscans
  - acicularis
- Nuttallia
  - cerasiformis
- Lindleya
  - mespiloides
- Chamæbatia
  - foliosa
- Prunus
  - Capuli
  - (Padus) cornuta
  - (Microcerasus) ilicifolia
  - (Cerasus) pumila
  - (Cerasus) serrulata
  - japonica
  - tomentosa
  - aspera
  - candicans
  - divaricata
  - acuminata
  - Chicasa
- Armeniaca
  - Nume
    - var. præcosissima
    - virgata
    - pendula
- Persica
  - Davidiana
- Maakia
  - amurensis
- Anagyris
  - (Piptanthus) nepalensis
- Indigofera
  - Roylei
  - Iwafusii
- Lespedeza
  - bicolor
  - argyracea
  - cyrtobotrya
- Desmodium
  - Dillenii
  - penduliflorum
- Genista
  - purgans
- Rhamnus
  - californicus
  - libanoticus
  - castaneæfolius
- Rhamnus
  - sexatilis
  - Pallasii
- Hovenia
  - dulcis
- Nandina
  - domestica
    - var. minor
    - major
    - fr. albis
    - fr. flavis
  - tenuifolia
  - sempervirens
- ? Kadsura
  - japonica
  - propinqua
- Anona
  - Maximowiczii
- Actinida
  - Kolomikta
- Ungnadia
  - speciosa
- Vitis (Cissus)
  - heterophylla
    - var. elegans
  - tricuspidata
  - Veitchii
  - Thunbergii
    - var. Sieboldi
  - flexuosa
  - (Ampelopsis) cordata
  - serjaniæfolia
  - ficifolia
  - humulifolia
- Zanthoxylon
  - planispinum
  - schinifolium
- Staphylea
  - Bumalda
- Akebia
  - quinata
- Lardizabala
  - biternata
- Maximowiczia
  - sinensis
- Holbœllia
  - latifolia
- Stauntonia
  - hexaphylla
  - sinensis
  - latifolia
- Menispermum
  - laurifolium
- Berberidopsis
  - corallina
- Azara
  - ovata
  - integrifolia
  - salicifolia
- Plagianthus
  - divaricatus
- Stachyurus
  - præcox
    - var. gracilis
- Stewartia
  - Malachodendron
- Stewartia
  - grandiflora
  - monadelpha
- Euonymus
  - Maakii
  - alatus
  - obovatus
  - radicans
  - fimbriatus
- Rhus
  - semialata
  - vernicifera
  - juglandifolia
  - ternata
- Morus
  - Towkna
  - Kaki
- Broussnetia
  - Kæmpferi
- Negundo
  - cissifolium
- Acer
  - callosum
  - micranthum
  - pulchellum
  - septemlobum
  - palmatum
  - palmatipartitum
  - platanoides var. palmatipartitum
- Æsculus
  - sinensis
- Benzoin
  - præcox
  - sericeum
- Betula
  - tristis
  - costata
  - corylifolia
- Camellia
  - oleifera
- Celastrus
  - Orixa
- Clerodendron
  - trichotomum
- Gleditschia
  - sinensis
- Kœlreuteria
  - japonica
- Rhododendron
  - brachycarpum
  - rhombæum
- Rubus
  - parviflorus
- Smilax
  - rotundifolia
- Sophora
  - angustifolia
- Xanthoceras
  - sorbifolia
- Prinus
  - lævigatus
- Tilia
  - truncata

There is nothing in the way of an arboretum in France that can be compared with that at Segrais. Here will be found the great majority of the trees and shrubs belonging to the cold and temperate regions of Central and Eastern Europe, of Asia Minor, of the Caucasus, and of the high regions of the Himalayas, Bhootan, Thibet, and Nepaul. The vegetation of the Amour, of Japan, of China, and of other parts of Eastern Asia, have also been searched with earnestness for such novelties as would live out-of-doors at Segrais; and, finally, it is scarcely necessary to add that the vegetation of North America, as well as that of the coldest regions of Mexico, is also represented there. In short, M. Lavallée may say with truth, that his arboretum is a living herbarium, in which each variety seems to have been subjected to conditions most favourable to its growth. Of the truth of this no better proof is needed than the vigour and general good health of the different specimens which it contains.

THE INDOOR GARDEN.

PELARGONIUMS FOR WINTER DECORATION.

Those of the Tom Thumb type are the best for forcing; for, though their trusses are not large, they answer better for bouquets than large ones. Christine, too, is useful, and of a favourite and showy colour. These, with a few white varieties, and one or two intermediate shades, will be found useful for furnishing blooms in winter. As a rule, those kinds which flower freely out of doors will be found to be best for forcing, and I always select a number of plants for the purpose when we have done bedding. Some of the new ones of Pearson and Denny have fine trusses, but all do not flower freely in winter, though excellent for autumn decoration. However, it is safe to have as good a stock of plants of different kinds as may be found convenient; but none will flower well in mid-winter if they have not been prepared for it. The plants may be selected and potted about this season. Six-inch pots are a proper size for them, and they should be well drained. Use a good loam, with a little leaf mould, or peat and sand, and pot the plants moderately firm, particularly under the roots, and afterwards plunge them out of doors in ashes in a sunny situation. During the summer let them be liberally watered now and then with liquid manure, not too strong. Those shoots that are leading too much only need be stopped; but if the plants grow pretty regularly in shape, it will only be necessary to keep the flower buds picked off constantly till about the middle of October. By this time the pots will be filled with roots like a Strawberry pot, the wood well matured, and every shoot disposed to flower. No plants should now be transferred to the house; a dry, airy greenhouse or vinery is a good place, and they may be allowed to come into flower by the time flower buds are over, or to succeed the autumn-flowering stock. As winter advances, however, an ordinary greenhouse temperature of from 45° to 50° will be too low for them. The Pelargonium must have heat and light to bring the flowers out successfully. A back shelf of an early Vinery will suit them, and while they are kept freely watered at the root, syringing overhead must be avoided when damping the Vines. Forcing during the dead of winter is sluggish at the best, however, and the secret is to have plenty of plants in moderate-sized pots, and force as many as can be accommodated, according to the demand for flowers. For use in February, March, and April I have sometimes depended entirely on old plants lifted from the beds in November, or before they got frosted. Big plants of Christine and other compact growing sorts produce an excellent display in spring, and afford plenty of cutting. When taken up in autumn, however, the branches must not be cut back. The plants, if very large, may be reduced in circumference, but no shortening of the shoots which are left should be allowed, or they will not flower so soon nor so well. I lift them, and squeeze them into as small pots as possible—generally 5 or 6-inch—and put the plants into a smart heat to get rooted. This accomplished, they are stored in the cool, dry houses, where they get hardened a little, and we draw off the stock as required. Christine is particularly useful in this way; it is a variety that comes in rapidly when it does flower, and I can assure your readers there are few plants which light up a conservatory more effectively in spring, when a number of large plants are placed among the other specimens all over the house; and no kind of decoration is more easily kept up.

J. S.

ORCHIDS IN FLOWER NEAR LONDON.

Mr. Day's collection of these interesting plants, at Tottenham, is now peculiarly attractive. Few would imagine that so much flower beauty and so much fragrance could be collected under a crystal roof, at the foot of a little green lawn, at the back of an ordinary dwelling-house, so near London. Tottenham is scarcely the place in which one would expect to find the Alpine flowers of the Andes, the cool-growing Odontoglossums and Masdevallias, or the wreath-like inflorescence of snowy Phalænopsids, from the warm islands of the Malayan Archipelago, yet, here they are, in all their native freshness and beauty, along with great-lipped Cattleyas, as variable as they are beautiful—so variable indeed, in form, habit, and colour, that they defy the most liberal-minded species-maker to settle the position in which they should be placed—so subtle are the different changes of form and structure, by which alone he can distinguish them. Speaking of Cattleyas reminds us that they are amongst the noblest of all summer-blooming Orchids, and here at Mr. Day's are great masses of C. Mendeli, perhaps twenty or thirty specimens all in bloom, with broad petals of snowy purity, and a finely-formed lip, in which ivory-like whiteness and the richest carmine imaginable are associated. Some few of these Mendel varieties, however, have the pearly petals suffused with soft flesh colour, and then the carmine-tinted lip deepens into a velvet-like purple stain, and even each individual flower goes through at least a dozen infinitesimal mutations, both in form and colouring. Mr. Day has now numberless varieties of Cattleya Mossiæ in perfection, and, when well grown, few plants are more attractive than this; the same may also be said of the well-tried and ever-beautiful Lælia purpurata, L. elegans, and its still more attractive and highly-coloured forms, Turneri and Wolstenholmiæ are likewise now very attractive, and their stately habit contrasts well with the short stubby growth of the Mossiæ section. The dwarf-growing Cattleya Schilleriana is now blooming freely, its great green-sepaled, purple-blotched flowers being embellished by the richest of purple markings on a white fan-shaped lip. This is now blooming freely at Tottenham, and we also saw it a day or two ago in Mr. Bockett's collection at Stamford Hill. If, perchance, there is one Orchid more singular in appearance, or more attractive than another, you are sure to find it well represented in Mr. Day's unique collection. Take, for example, Phalænopsis amabilis and P. grandiflora, of which there are, perhaps, a hundred plants for the most part in bloom, or Odontoglossum Alexandræ, and its near ally O. Pescatorei, to which a whole house is almost exclusively devoted, and in which are multitudes of wreaths of snow-white flowers, the petals of which are set with rubies; contrast with these the fresh green foliage and white flowers of the Odontoglots here growing freely and flowering profusely, and some idea of the richness of the display may be conceived; and associated with these are also twenty or thirty plants of the fine orange-coloured Epidendrum vitellinum majus; but, if there is one Orchid more delicately beautiful than another, it is the little green-flowered Dendrochilum filiforme, which is also blooming freely in several other London gardens, besides that of Mr. Day. Few cool-growing Orchids are now more attractive than the Alpine, or rather Andean Masdevallias; and in Mr. Bockett's collection we saw the following species in bloom a few days ago, viz., M. trochilus. This is a new species, lately figured in "L'Illustration Horticole" (see plate 160). It was sent to Mr. Linden from New Granada, in 1872, by Roezl, who forwarded living plants of it collected in the elevated regions of the Cordillera of the Andes. According to this traveller the gigantic flowers of this peculiar species are shot with a bluish metallic lustre, like the plumage of the humming-bird tribe, hence the specific name. This colouring has procured it the appellation of Colibri from the inhabitants of the southern part of the State of Antioquia, a word having the same signification. Two varieties of M. Harryana are also flowering freely, one having bright rosy-lilac-tinted blossoms, the other large blood-coloured or crimson flowers. M. Veitchii is also blooming freely; this has large blossoms of a rich orange-yellow colour, the lower half of each sepal being densely set with bright purple hairs, a circumstance which gives a remarkably rich appearance to the whole flower. M. ignea, a small but remarkably orange-scarlet-flowered species, is now very attractive, although scarcely so showy as M. Veitchii and M. Harryana. Lady's-slippers of various kinds are likewise now in perfection, and we have seen some fine specimens of Cypripedium barbatum, C. Veitchii, C. Dayi, C. Stonei, including one in Mr. Bockett's collection bearing eighteen flowers, and C. lævigatum, C. niveum, C. Harrissianum, C. Schlimii, and the new hybrid C. selligerum are also all at present in bloom. At Kew, the following, among other Orchids, are in bloom, viz., Cypripedium Parishi, a Lady's-slipper, not remarkable for striking beauty, the long-tailed flowers being of a pallid or apple-green tint, shaded with dull purplish-brown. This plant has also bloomed recently in Messrs. Veitch's collection at Chelsea, and, a month or two ago, a fine plant of it flowered in Mr. Russel's collection at Mayfield, Falkirk, the flower-spike in the latter case bearing seven blooms. One of the most continuous flowering, however, is C. Roezlii, a kind with apple-green flowers, suffused with pale rose. This plant bears its flowers on a long erect spike, only one flower being fully developed at one time, so that the plant is frequently in bloom all the year round. One of the prettiest of all Orchids, now in flower at Kew, is the pale Primrose-lipped Dendrobium Pierardii, several strong plants of which are now flowering profusely. It is one of the easiest of all Orchids to cultivate; and, as it can now be bought as cheaply as the most ordinary stove plants, it is well worth culture, even if only for cut-flowers. The rich-tinted Cattleya Aclandiæ is now blooming on a block. Its sepals and petals are of a rich olive green colour, blotched with dark purple, the lip being bright purple edged with white. The old purple-blossomed Bletia Shepherdi has been in flower during the past two months, and is still very attractive, bearing rich purple or purplish-magenta-coloured flowers, on large branching spikes. This plant is much used by Messrs. Standish & Co., of Bagshot, for cut bloom, its flowers being found valuable for button-holes and other choice bouquets. Cattleya gigas is flowering freely in several collections near London, and we recently saw a fine variety of it opening its crimson-lipped flowers in Messrs. Veitch's collection. This is one of the best of all Cattleyas, bearing rosy-lilac flowers, fully 8 inches in breadth, the lip being of a rich velvety-crimson; it is a robust-growing plant, and succeeds well on a block in a moist atmosphere. The new Zygopetalum Sedeni is bearing a three-flowered spike in the Royal Exotic Nursery, Chelsea. It is a hybrid, obtained a year or two ago by crossing Z. maxillare and Z. Mackayi. Its rich bluish-purple lip is like that of the first-named parent, but larger, while the sepals and petals are of a very dark purplish-brown colour. Mr. Bull has a pretty variety of the well-known Phalænopsis amabilis, named erubescens, now in flower, the middle lobe of the cirrhose lip of which is washed with yellow on its broadest part, and splashed with rose colour. We have also noted the bright little P. amethystina in bloom in several collections. B.

PLANTING OUT CARNATIONS FOR WINTER BLOOMING.

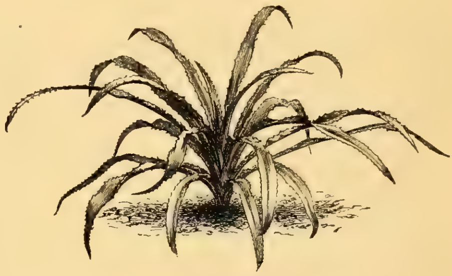
Few plants flower with so much certainty as the Carnation, but, for early forcing, the flower buds should be formed, or nearly so, before the end of October. I have lifted plants from the border about that date with a profusion of buds upon them, which continued to open during a greater part of the winter. Of winter, or tree Carnations as they are called, there is now a great variety, but the white, such as Avalanche, the pink Souvenir de la Malmaison, and the scarlet and rose-coloured varieties are most useful. I would advise no one to have more than three or four distinct kinds, and these only such as are known to be profuse bloomers. Whether old plants that have flowered during the last winter and spring or young plants have to be dealt with, no time should now be lost in transferring them from their winter pots to the open border, where they must remain till they have completed their growth. Provide a bed in a sunny, open, but sheltered situation, and put the plants out about 2 feet apart. Reduce the old balls considerably, taking away the crocks and spent soil, without shaking the roots out altogether, and plant them well up to the collar. If the bed consists of ordinary garden soil, then fill round each ball with light rich soil, consisting of leaf mould, loam, and sand, in equal parts, for a space of 6 inches all round. This will be sufficient for the roots during the summer, and will give a good ball of soil with them at lifting-time. Plants that have not been cut down yet will be pushing about the base of the flowering shoots; therefore, do not remove the young shoots now, but cut back to them, and when the planting is finished stake each plant and tie them, but not too tightly. Let all the shoots grow; the larger the bush the more flowers, only give them room as the plants grow. If all has gone on well each plant will be profusely furnished with plump buds by the end of October, when preparations must be made for lifting them. For bushy plants, such as I am contemplating, and such as fine young plants will make if planted out in time, 9-inch pots, at least, will be required; and, rather than reduce the balls too much, I would give them a larger size. Get the plants up, at all events, with good balls, by first cutting round them with a spade, and then getting it under them, and lifting them clean out of the ground. Transfer them at once to the pots by lifting the ball carefully with both hands and dropping it gently in, and fill round with light soil, giving the pot a slight shake to settle it; but do not make it too firm, for that would only injure the roots; watering thoroughly will settle all effectually. This is a better plan than growing the plants in pots all summer, for they grow better and want less attention, and experience no check at all by lifting, if it be done with ordinary care. The plants may be transferred at once to the conservatory or house in which they are to flower, for, like the Camellia, they want exceedingly little forcing. A warm light greenhouse or an intermediate house is the best place for them, and they must have all the light possible, ventilation, and little or no moisture overhead; a damp low temperature causes the buds to rot without opening. J. S.

BOUVARDIAS FOR WINTER FLOWERING.

The propagation and winter-forcing of Bouvardias for commercial purposes, in the United States, is conducted as follows by the best growers. By the middle of July, the plants in the houses are done flowering; at least the amount of flowers produced after this would not pay for the room they occupy, the space being required for spring-flowering plants for market purposes, the object being to make each department remunerative in its season. The plants in question are then taken up and propagated by division of the roots. They are shaken out, and all the strong roots are taken off, leaving 6 inches upon the parent plant. These roots, having been cut into lengths of from 1 to 1½ inches, are inserted in sand-beds in the propagating-houses, as thickly as they can be set, and are then covered with sand to a depth of half-an-inch and watered. So soon as they are 1 inch above the surface they are taken up, potted off into 2-inch pots, and as soon as they are established in them are shifted into 4-inch pots, and kept in the house for two months. They are then taken into the nursery, where a trench is taken out, at the bottom of which the plants are placed. It is then filled in, the rim of the pots being covered with soil to the depth of 2 inches—the usual distance between them being 9 inches in the row, and 1 foot in the line. As they advance in growth they are kept pinched up to the middle of September, and are then all taken up, and those intended for winter-flowering shifted into 5 or 6-inch pots, planted in the house, and kept shaded for some days. The old plants from which the cuttings were taken, after having been shaken out and disrooted as above, are re-potted into 4-inch pots, and as soon as these are filled with roots are shifted into others, two sizes larger, and planted out in the open ground about the 20th of May. As they show flowers, they must be pinched off, and by the middle of September the plants are carefully taken up with balls, planted on the benches, or re-potted, and placed under glass. Planting on the benches is best, as it entails less labour in their after management, and, I think, extends the period during which cut flowers may be obtained. Cuttings from roots cannot be planted out of the pots; if this were done, they could not be lifted with balls in the autumn, and, as a consequence, would lose all their leaves and two-thirds of the wood made during the summer. In order to lift Bouvardias with good balls in the autumn, they require to have good balls when planted in the spring, otherwise the whole had better be retained in pots, and plunged in nursery rows, as here described. The old plants should also be well cut in previous to potting. A stock of them is kept for summer propagation, cuttings of the young wood being put in when from 2 to 3 inches long, potted off into 2-inch pots, and sold to the trade at £1 4s. per hundred plants. One of the best white Bouvardias for summer and autumn use is B. jasminoides, which flowers freely, and has a good truss; but it does not pay to grow it in winter for cut flowers. If kept pinched during the summer time, say until the 1st of September, it will flower freely until the first of December. The leading varieties for winter use are B. Davidsoni, B. Hogarthi, B. Leanthi, and The Bride. Flowers of Bouvardia are not as profitable for winter use as cut flowers of other plants; but it is necessary to have them, so as to be able to supply the trade. J. Howatt.

ANANASSA BRACTEATA.

This ornamental species of Pine-apple, though introduced into England many years ago, is seldom met with; but in Portugal and other parts of the Continent it is largely grown for decorative purposes. Like its congeners, it is dwarf in habit, with scarcely any visible stem, and it has long, drooping, handsome deep-green leaves.



Ananassa Bracteata.

Like other Pines, it may be increased by means of suckers and crowns, both of which rapidly develope into handsome plants. In fact, from an ornamental point of view, the Ananassa Bracteata is quite equal in beauty to Ananassa sativa variegata. Its fruit, which it produces freely, is of little value compared with that of ordinary Pines. Q.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Vanda limbata.—This new Japanese species was introduced to our gardens last year by Mr. B. S. Williams. It has bright green strap-shaped leaves, which are recurved, and the flowers are equal in size to those of V. Roxburghii, but their colour is bright chocolate, edged with gold, and the lip is rosy-lilac. This Vanda is figured in the "Botanical Magazine" for this month.—B.

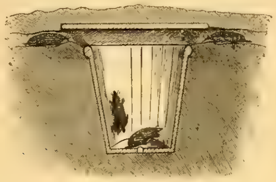
Adiantum Farleyense from Spores.—I have always understood that this Adiantum would not produce "seed," but a number of seedlings have come up with me in a pot in which a plant of this Maiden-hair Fern is growing. I am much interested in the matter, and will feel greatly obliged by some of your correspondents informing me whether or not this is a rare occurrence.—F. L. Barnes, *The Croft, Walton-on-Thames.*

Mangoes from Seed.—I have received five seeds of the Indian Mango, and I am anxious to know how to treat them.—W. Ryan, *Knocklofty, Clonmel.* [Sow them at once in separate pots, and plunge them in a temperature of from 80° to 85°, keeping them moist. They are rather apt to prove failures, as they travel badly. The outer coating should be left on as imported, or they will be almost sure to die. When up they will require a shift early, as, from the first, they make large roots.—J. Croucher.]

How to Fruit the Coral-berried Duckweed (Nertera depressa).—Few plants are more attractive than this, when in fruit, and it is, fortunately, hardy enough to ripen its berries well in a sunny window, or even in sheltered portions of the rock garden, after they are set; but, above all, it is as a pot plant that it is of most value. In order to induce it to fruit freely, it should be placed in a stove or warm plant-house, on a sunny shelf near the glass, as it does not set its fruit freely if too much shaded, or when planted out; as soon as the plant is set, however, it may be placed in a cooler temperature, in which the bright orange-scarlet berries will swell and acquire their characteristic coral-like colour, and continue ornamental for a considerable time.—B.

DESTROYING MOLES.

Persons who think that moles ought to be caught and destroyed have frequently been exasperated because of the conspicuous failure of traps warranted to catch these little creatures. Now, however, a gardener has hit upon the simplest contrivance in the world which he presents to the public for their free use. This is merely a large flower-pot—an old tin pail will answer the purpose excellently—sunk beneath the ground, upon a level with the floor of the run. A flat piece of board is laid over the run, and the earth heaped upon it so as to exclude the light completely. In the perfect simplicity of the thing its success chiefly lies. The moles, seeing or feeling nothing with the highly sensitive "feelers" upon their snouts, run very readily into the trap, from which there is no escape. Every fresh arrival adds to the company, for there is no re-setting required, and there is no disturbance of the ground to excite suspicion. Doubtless the movements of the moles themselves attract other unfortunates to their ruin, for I am assured by one who has tried the trap with eminent success that he caught seven moles the first day, and three the second after setting it.—"New York Tribune." During wet weather I am much troubled with moles, which come into my ground from the neighbouring market gardens, where, amongst Potatoes, Cabbages, and other crops grown on a large scale, they do comparatively little injury, and are, consequently, not much looked after. Whilst the weather is hot and the soil on the surface dry they work deeply, casting up a hill here and there, but not doing any material damage; but, when rain comes, and the worms rise to the surface, they become a great nuisance, ploughing up the ground in all directions; under such conditions it it difficult to trap them. My most effective mode of catching them is going quietly to their whereabouts early in the morning with a long steel fork, and watching for indications of their presence—one of which is worms escaping as from an enemy—then, by watching patiently, the soil will soon be seen to move, when in goes the fork, and, in nine cases out of ten, out comes the mole. If I miss it, it is because just then it was burrowing too deeply.—A. D.



Section of an effective Mole-trap.

Purse Galls on the Elm.—Elm trees, especially when young, are often attacked by various kinds of plant-lice. One of these, which makes a very conspicuous gall, which is now common near London. The insect is more or less of a dark green colour, somewhat spheroidal, and covered with a cottony villosity, with brownish shortened feet and very short antennæ, unprovided with tail or tubes. It makes a small opening in the Elm leaves with its beak, where it deposits its eggs. The extravasation of the sap causes the formation of large bullae purses or vesicles joined to the leaf by a stalk. If one opens them before they have been pierced they will be found full of small plant-lice enveloped in a whitish cottony blanket. In summer these galls burst, and the swarm of plant-lice issues forth. Boisduval considers this species to be the Aphis ulmi of Linnæus, but Hartig, and following him Kaltenbach, refer Linnæus's name to another species, which they call Tetraneura ulmi. It is not of much consequence, but the above species they name Schizoneura lanuginosa. The other species (Tetraneura ulmi) was named Aphis ulmi by De Geer. It is smooth shining, of a greenish-black colour, and without any cottony villosity. It lives under the leaf, which it folds or rolls round. Like the others it has neither tail nor cornicules. There is another Elm-gall, also produced by an aphis, which we have not seen in England, but which is common in the north of Italy. It simulates the appearance of a Raspberry both in size, colour, and lobes.—A. Murray.

Medicinal Uses of the Sweet Flag (Acorus calamus).—Ainslie says that "it is a very favourite medicine of the Indian practitioners, and is reckoned so valuable in the indigestions, stomach-aches, and bowel affections of children, that there is a penalty incurred by any druggist who will not open his door in the middle of the night and sell it if demanded." A bath made of the infusion of the root "is regarded as an effectual remedy for epilepsy in children." Schröder informs us that "it possesses virtues in obstructions of the spleen and liver." The Egyptians regard it as a valuable aromatic and stomachic. The Turks prepare a confection of the root, and employ it "as a preventive against contagion." "European practitioners have considered the root as tonic and aromatic, and occasionally prescribe it in cases of intermittent fever and dyspepsia." Dr. A. T. Thomson recommends it as an anti-periodic; and Dr. Æ. Ross reports that it is an excellent stimulant and diaphoretic; he looks upon it "as most serviceable in atonic and choleraic diarrhœa." As an insecticide, particularly with reference to fleas, I have always found it very efficacious; but for this purpose, the root must be obtained fresh. Last year, the chief cause of mortality among the house patients of the Seoni Main Dispensary was dysentery; the gaol population also suffered very much from the same disease. The disease is most prevalent about the middle of the rainy season, that is, during the months of July and August. The disturbance probably of the water-supply, especially when this is derived from tanks and streams, and the dampness of the season are, in some measures, I think, accountable for the appearance of the disease. In many of these cases, a malarial taint could be detected. Ipecacuanha does not, I regret to say, always succeed in these cases. There were no less than sixty-nine cases of dysentery treated in the Main Dispensary during the months of July and August. I found a decoction of the rhizome of the Acorus calamus very effectual in arresting the flux of blood, especially in the dysentery of children. The decoction is prepared thus:—Of the bruised rhizome, 2 ounces; Coriander seed, 1 drachm; black pepper, half a drachm; water, 1 pint; boil down to 12 ounces and set aside to cool. The dose for an adult is an ounce three times daily; for a child, 1 to 3 drachms, sweetened with sugar, two or three times a day. Astringent extracts or quinine might be added if necessary. —"Pharmaceutical Journal."

CITY ROSES.

From Cashmere's Vale to sultry Chepe,
For Fancy is a flying leap;
But as sweet June, in showers that weep
Her parting, closes,
Grim London shows as gaily drest
As Shiraz at its summer best,
With Flora holding, East and West,
Her Feast of Roses!

Roses, ripe Roses, everywhere
Scent the dull City's dusty air;
Fern-folded buds for Swells are there,
At fancy prices;
And leaf-wrapt "Mosses," cheap yet sweet,
The humble luxuries of the street,
Which with piled Cherries ripe compete,
And penny ices.

Sir Sybarite shudders; his are dreams
Of Chushunt clusters, Gunter's creams;
But Bendemeer's bright bowers and streams,
Or groves of Arden,
Are not for all; and there are those
Whose pleasures are a penny Rose,
And gorgeous, albeit gratis, Shows
Of Covent Garden!

Welcome, sweet child of June, whose grace
Bids even mammon yield thee place;
Whose beauty brightens every face
Which bends above it!
Were Punch not Punch, he'd fain be Paul,
Or Cant of Colchester. To call
Roseland his own, were surely all
A bard could covet!

Lyous "Rose-Congresses" are things
Which those devised by scheming Kings,
Or Bismarck, with his seraph wings,
Are put to shame by.
How poor are plots to prop a throne,
Besides the pride of having grown
Some bright new blossom, to be known
Some sweet new name by!

Say "Punch's Own"—a friendly hint
For Paul and Son! Both shape and tint
Should be perfection, the last print
Of Flora's finger,
Impressed on perfect petals! Then
Shall the Great Teacher's City den
Be home for Hafiz, and his pen
O'er love-lays linger. —"Punch."

THE FRUIT GARDEN.

STRAWBERRY CULTURE.

In the cultivation of Strawberries the soil is of much importance. The best Strawberry soil is a good sound loam, and if rather unctuous so much the better. A poor, light soil is quite unfit for Strawberries; but much may be done by deep digging and liberal supplies of manure. A light soil should be trenched fully 2 feet deep, and plenty of manure should be placed at the bottom of the trench. For a moderately stiff soil, two good spits, or about 20 inches, will be found ample. In either case, the soil should be made rich with manure; and, at the time of planting, ample space should be given for future development. The selection of runners is also an important consideration. Those only should be employed that are stout and healthy, with a good, round, plump bud in the centre; and they must be from fruit-bearing plants. When runners are taken at random from unfruitful plants, the progeny generally proves unfruitful also. It is of the utmost advantage, in order to obtain the runners quick, and to get them soon into their fruiting quarters, that they be layered in small pots about 4 or 5 inches in diameter, filled with rich loamy soil, and mixed with a little rotten dung. While they remain in the pots, they must not be allowed to suffer from want of water. They will make rapid progress in this rich compost; as soon as they are fairly rooted, they can be cut away from the parent plants, and, as soon as convenient afterwards, they should be finally planted out before the pots become matted with roots. Such plants in dry weather succeed much better than pieces of runners without roots, those in pots commencing to grow at once, while the others dry up. Last August I formed a plantation with plants that had been layered in pots, with the exception of one row that came from a neighbour that had not been layered. Those that had been prepared by laying in pots are six times as large as those just alluded to, and are bearing six times as much fruit.

In planting, I perhaps give more space than many people think proper, but it has always been a first principle with me to give our crops ample room for development, and I rarely ever find any plant ungrateful for such liberality. The planting requires great care, for on this much of the ultimate success depends. I would here advise, if the soil be very light, that it be made firm before planting. When convenient, a portion of clay should be added to it, which will much improve the condition of the plants. If the ground be tolerably stiff this will be unnecessary. In planting, take care to make the ground firm about the roots. There is scarcely any soil so poor but what may be made to grow good Strawberries, if properly managed. With regard to distance, we allow them, on an average, 27 or 30 inches from row to row, and about 2 feet apart in the rows. I have known some, who have wished to make the most of their land, plant 1 foot apart in the rows, and, after the first crop, destroy every alternate plant. Others I have known to have planted a row of Coleworts between each row, and to have pulled them up by the roots early in spring, leaving the whole space to the Strawberries. I never allow a bed to remain longer than three years before it is destroyed. Good fruit is obtained the first year after planting; the crop may be a little heavier the second year, but the fruit will be finer the first year. The third year the crop will be good, but the fruit will not be so fine as it was either the first or second; and, after it is gathered, the bearing powers of the plants will be exhausted, and they should either be burnt on the ground, and the ashes carefully spread over the land, or they should at once be dug in, thus restoring to the soil much of the matter which has been absorbed by the plants in their growth, and the absence of which has lessened fertility in a corresponding degree. Where Alpine Strawberries are grown they may be treated as annuals, the old plants being destroyed every spring; they will then yield a good crop of fruit when others have done bearing. Eclipse with us is a great favourite, being a heavy cropper, of average flavour, and an excellent variety for pot culture. Sir J. Paxton is a handsome early variety, the flesh of which is very solid. Its flavour is very good, it forces well, is a very free grower, and quite hardy. Its appearance, which, perhaps, surpasses that of all others, renders it valuable for dessert—it is of a rich bright glossy colour, and should be in every collection. Dr. Hogg is very much like the British Queen, from which it was raised. It is however much finer, a better grower, has a better constitution, and has established itself as a general favourite. I am now gathering fruit from this variety which will average nearly 2 ounces each. It is one of the sweetest Strawberries grown. Cockscomb is a very fine and handsome variety when it succeeds, and is, where it is known, a great favourite. Viscomtesse Héricart de Thury is synonymous with Lion de St. Lasemer. The skin is deep scarlet in colour; the flesh firm, solid, and highly flavoured. The plant is vigorous and nearly as productive as Eclipse, though the berries are not quite so large. It continues a long time in bearing. The foliage resembles that of the old Keen's Seedling. It is a valuable variety for general cultivation. Amateur is a fine conical-shaped berry, with a rather acid flavour, but a heavy cropper. These kinds are what I have grown this season, and at the time of writing (July 6th) are in full bearing. Early Prolific, Duke of Edinburgh, and James Veitch, were bought in the spring, but I cannot report on their qualities at present. For the purpose of keeping the fruit clean I use litter, which, if it does not meet the views of some fastidious people, has the advantage of thoroughly answering this purpose. On dry, gravelly soils, little good can be accomplished in a dry hot season without plenty of water. This may be considered the life and soul of the Strawberry. With a hot sun and plenty of moisture, the fruit may be brought to great perfection; without them, it languishes. It is, therefore, obvious that a good supply of water is a necessary adjunct to every Strawberry garden. As soon as the blossoms begin to expand, the water should be given freely; and if, before the plants go out of bloom, they can be given a good soaking of manure-water, it will almost double the weight of the crop. I consider the application of manure-water to Strawberries, while they are in bloom, the secret of success. Gardeners of the old school used to allot certain quarters to the growth of certain crops, and, more especially, those of Strawberries; but I would particularly advise that such a practice should be abandoned, and a fresh situation for every succeeding plantation provided. When the ground has been occupied for several years with the same crop, it becomes exhausted; and, my own experience has convinced me that Strawberries form no exception to this rule. R.

WALL TREES FOR VARIOUS ASPECTS.

After what has already been said on the subject of aspect, it will be admitted that to lay down a hard and fast rule for planting wall trees, if that were possible, would be of no practical value; a few general observations on the subject are all that can be hazarded. In order to define what fruit trees would be suitable for certain aspects in a given locality, the matter would have to be determined by actual experiment: this is a slow but sure way of gaining the necessary knowledge, and, after all, is worth the time and trouble in every case. If a really good variety of fruit is unsuccessful on a certain aspect, let another be tried, or even the same aspect in another part of the garden; slight as the change is it may be attended with success. The general rule is to plant south walls with Peaches, Apricots, Figs, and the most tender of late Pears. Unless in very warm sheltered localities, Peaches and Figs are precarious crops even on south walls and with extravagant expenditure of labour in protection, training, and other attention; the former, we venture to remark, will be more successful on comparatively dwarf walls of from 8 to 10 feet than on high walls of 12 to 14 feet. Figs require a high wall. South walls are unquestionably the place for Apricots—indeed, this aspect is altogether the most important generally throughout the country, north or south, and therefore the choicest fruits must monopolise it, or such fruits as are most in request. Among Apricots, there are no varieties better than Moorpark, Shipley, and Mashmash—the former perhaps the finest of all Apricots; the second a very prolific and early variety, excellent also for indoors; the latter the best for preserving. Of Peaches for the open wall, we know none better than early Louise, Barrington, Noblesse, and Desse Tardive. Besides the above, it is often necessary to have a few trees of early Cherries on a south wall for early fruit: three kinds suitable are Bigarreau, Black Tartarian, and May Duke, and well worthy of a place on a south aspect. Of Plums, Coe's Golden Drop, Kirke's Plum, and Green Gage are worthy of a south wall, the former requiring abundance of the sun's light and heat to bring it to perfection; than Kirke's we know no better purple Plum, and it richly deserves a south aspect. If room can be spared, there are many varieties of Apples which deserve a south wall, such as Cornish Gilliflower, Nelson Codlin, Ribston Pippin, Melon Apple, Northern Spy, Golden Winter Pearmain, and many more. Among Pears deserving a south wall, or that cannot be grown to perfection without it, it would be very difficult to make a selection; even such hardy Pears as Flemish Beauty and Urbanisto are sometimes magnificent in size and quality from a south wall when the soil is favourable. As a rule, the better class of late Pears should be selected when room is found on a south aspect, such as Joséphine de Malines, Bergamôtte d'Esperen, Beurré Rance, Easter Beurré, and Ne Plus Meuris. On north aspect walls the Morello Cherry succeds to perfection, and hangs for months after it is ripe without shrivelling. A space of north wall should also be devoted to Red Currants, trained as upright cordons, in order to prolong the season for this useful kitchen fruit. Currants may be gathered from a north wall for tarts nearly up to Christmas. Among Plums we find that Orleans, Late Orleans, and Green Gage, do well on a north wall. The Red Warrington Gooseberry may also be planted against a north wall and trained like Currants, in order to retard its fruit for late use. For walls with an east aspect there is abundance of choice. First of all, the Apricot will do well provided the situation be dry and open, and the atmosphere not sluggish from the proximity of trees. On this aspect the Apricot is not exposed to the wet south-west winds of autumn, which are so prejudicial to the ripening of the wood. The dry easterly winds of spring do not seem to have any very injurious effect on the Apricot—no more than is easily preventible by the use of a few folds of old herring-nets to break the force of the wind. Cherries all succeed on an east aspect, also various Plums, such as Early Orleans, Rivers' Prolific, and Early Favourite, White and Red Magnum Bonum, Blue Impératrice, and Perdrigon. On east walls Apples will also do perfectly, of which Devonshire Quarrenden, Ribston Pippin, Starmoor Pippin, and Kerry Pippin may be mentioned. For a west aspect, Pears succeed perfectly, and will assume quite a different appearance from the same varieties grown on a south wall; Pears swell to a large size on west walls generally. Many Plums also succeed well or best on west walls; as Coe's Golden Drop, Kirke's Washington, Greengage, Reine Claude de Bavay, and Victoria. Among Apples for a west wall are Oslin Pippin and Irish Peach, two fine early summer Apples. These must only be accepted as general remarks on planting trees on walls. So much depends on the climate of a locality, whether low-lying or elevated, inland or near the sea, that a rule applicable to all gardens would be impracticable. The amount of rainfall in a district is another vital element affecting the success of wall-fruit culture, especially Peaches, Apricots, and late Pears, the range being from 20 inches in some districts to 120 inches in another. It does not, however, follow that, because a district has a heavy rainfall it is unfavourable to fruit-culture generally; but sometimes the reverse; the atmosphere may be much more humid in the district of least rainfall, say in autumn, when the wood of fruit-trees should be ripening—a most important period —than in the locality of the greatest rainfall, because the temperature of the air may be higher in the former, and consequently will excite continued growth too late to ripen; whereas in the latter, growth will have ceased from decrease of temperature, and the wood be sufficiently consolidated for the formation of blossom-buds. In this we suggest a comparison between the south-west coast and the inland and elevated parts of the west.—"The Gardener."

Blackheartedness in St. Michael Pine-apples.—Mr. W. Thomson makes a statement concerning the St. Michael Pine-apples in the last number of the "Florist and Pomologist," that does not accord with our experience of these fine fruits. He says—"That the reason why so many of those otherwise fine Pines, brought from St. Michael's, so soon decay when placed in the fruiterer's shop, and are so often, when cut, found to be black at the heart is, that they are brought over with their stems in 'earthenware fountains of water, to keep them plump on the voyage.' I saw a whole row of them in this state in the window of one of the principal fruit-shops in Princes Street, Edinburgh, this spring. Another fruiterer in the same street told me that she would never have another St. Michael Pine in her shop, as she had had several returned that were found to be black inside when cut. When black, there is of course little danger of their doing injury, as no one will eat them in that state; the danger is before the action of decomposition becomes evident to the eye. It would be far safer for those who consume these Pines if they were brought over sea in dry cases, without water; they might not arrive so fresh-looking, nor prove so heavy, but they would be wholesome, which they cannot be as at present imported." From some experience of St. Michael Pines in Covent Garden, we have no doubt that the above opinions are not based on the examination of such St. Michael Pines as are known in the London market. It is extremely rare to find a St. Michael Pine that is black in the centre. As now imported to the London market the Saint Michael Pines are the best example we have seen of the successful importation of perishable fruits from distant countries.

Birds *v.* Fruit.—A fruit garden surrounded with Strawberries and woodland is pretty sure to suffer periodically from the attacks of birds; and, as we have a great amount of labour in protecting choice fruits from them, I have been led to observe under what conditions their attacks become the most persistent, and I am decidedly of opinion that it is only when pressed by hunger, through the scarcity of their natural food "through long-continued drought," that they attack our fruit gardens to any serious extent. In moist showery weather, I have observed them feeding under the fruit bushes, without molesting the fruit. Blackbirds or thrushes are our most numerous depredators; and while they can find a ready supply of worms, grubs, and insects, they confine themselves to the shrubberies or woods, to the ground amongst crops in kitchen gardens, and, more especially, to fruit-tree borders when mulched. When, however, there are long periods of drought, and food gets scarce, birds get bolder every day until even the nets that we employ for covering small fruits fail to keep them out, as they will, when very hungry, find their way under them. Powder and shot, or good nets, are the only means that I find at all effectual in preserving a full crop of fruit. Raspberries are as much injured by birds as any crop we have; for, in addition to the quantity they eat, they settle on the side branches, and break them off in quantities, thus destroying the succeeding crop. The best remedy is to build a temporary framework over the beds, and cover the whole with nets. When birds are protected, the most economical way is to net up, effectually and well, all fruits before they begin to colour.—J. GROOM, *Henham Hall, Wangford.*

Influence of Shelter upon the Easter Beurre Pear.—A somewhat remarkable fact, in connection with this variety of Pear, which resulted from an experiment tried by M. Koller, at Enghien, in France, is reported in the "Moniteur Horticole Belge." M. Koller had some trees of this Pear, which succeeded admirably on walls, but, when tried on espaliers they failed, after having been planted for ten years, to produce any but split and speckled fruits that never came to maturity. Under the impression that the cause of this was a want of vigour in the trees, M. Koller tried a variety of means to remedy the evil, and, with this view, watered one year with pure water, the next with liquid manure, but all to no purpose. This year he determined to cut back the refractory trees, and to graft upon them more hardy varieties, keeping one, however, in the form of an espalier, to try the effect of sheltering it. To this end a post was driven in at each extremity, and on these posts he placed a screen forming a kind of hood with sloping sides. This was raised a little more than a foot above the tree, which itself is about 6 feet high. Under this treatment M. Koller obtained thirty Pears, which were the finest in his garden, whilst the fruit gathered from the same tree, which grew outside the screen, were split and cracked as they were before.

Stopping Figs on Open Walls.—In looking over the "Calendar," I observe that it is recommended to stop Figs by pinching out the terminal buds as soon as they have made three or four joints or leaves. I must decidedly beg to differ in opinion as to the merits of this operation. If it referred to Figs under glass I should fully coincide with the directions, as the object in stopping in that case is to throw all the energy of the tree into the formation of the fruit that usually appears at the base of every leaf. The second crop under glass, or that which is formed on the current year's wood, is often much more abundant than the first, or that which was formed the preceding year. But with trees on open walls the results are quite different. For as far as my experience goes, even in the south of England, it is only the first crop that ever comes to maturity. If the shoots are allowed fully to develop themselves, they will usually form several fruits at the base that are nearly half grown by the fall of the leaf, with from four to six of the top buds not started sufficiently to show the fruit, and on which depends the next year's crop. However carefully the green Figs may be preserved from frost, I never saw them swell into fine fruits. If the shoots are stopped now, in all probability every fruit will be too far advanced by winter to be of any service. Next year, all who happen to be sceptical as to the results of the two systems, should try half the stock of trees each way and compare the crops, then if they do not give up pinching for open wall trees their experience will be different from mine. I may add that as we are not far from the sea here Figs flourish most luxuriantly, and never suffer from frost even when entirely unprotected. By cutting out some of the longest shoots every season, so that they may break and furnish the base of the tree with young wood, we never fail in getting a crop.—James Groom, *Henham Hall, Wangford.*

THE HOUSEHOLD.

Cherry Fritters.—Take half a pound of ripe Mayduke Cherries, stone and halve them; make a pint of new milk pretty hot, sweeten it and pour it upon your Cherries; then well beat four eggs, put them with the Cherries, stir all well together, add a little flower to bind it, put it into a frying-pan a spoonful at a time, and, when the fritters are done, serve with sugar sifted over them.

Cherry Tart.—Have a very shallow round tin tart mould, not more than an inch and a-half deep; cover it with a paste not thicker than a penny-piece, then take some fine Cherries, cut off their stems with a pair of scissors, so as not to tear the fruit—the principal beauty of a Cherry tart consisting in the fruit being whole when sent to table. Pack in a single layer of the Cherries, strew a good deal of sugar over them, and bake the tart in a gentle oven. Serve hot or cold.

Cherry Jam.—Stone the Cherries, then take equal weights of white sugar and fruit, make a syrup of the sugar; simmer the Cherries slowly in the syrup for twenty minutes, take them out with a perforated skimmer, and spread them on dishes to cool, boil down the syrup till it is quite thick, put the Cherries back and let them boil up once; then seal in glass cans.

Cherry Pudding.—Scald a quart of milk and stir into it a pint of Corn meal; when cool, add half a pint of good flour or a little less of fine flour with which a teaspoonful of yeast powder has been thoroughly mixed, four well-beaten eggs, and a pint of ripe, unstoned Cherries which have been washed and rolled in flour while damp. Wring the pudding-bag from cold water, flour the inside well, put into boiling water, and boil steadily two hours. Place an inverted plate on the bottom of the kettle under the pudding, and as the water wastes add boiling water. Serve with a sauce of sugar and cream.

Pickled Cherries.—White Ox-hearts are preferred for pickles. The stems should be left on and the stones in; for 8 pounds of fruit take 4 pounds of sugar, 2 quarts of the best vinegar, a little cloves, cinnamon, mace, and ginger-root. Boil the vinegar, sugar, and spices together, skimming thoroughly; strain it over the fruit, and boil very slowly till the Cherries look like cracking open; take up carefully into jars, and keep in a cool place.

Dried Cherries.—Take large Cherries not too ripe, remove the pits, take equal weights of Cherries and sugar. Make a thick syrup of the sugar, put in the Cherries and boil them a minute, and spread them on an earthen platter till next day, strain the syrup, boil it down thick, put the Cherries in and boil five minutes, spread on a platter as before; repeat the boiling two more days, then drain, lay them on wire sieves, and dry in a nearly cold oven.

Cherry Pie.—Stone the Cherries, make a paste in the ordinary way, put in the fruit, add sugar and a little water. Stir a tablespoonful of flour smoothly into two of water and spread it evenly on the edge of the paste; put on the cover and bake till done. All fruit pies can, by using this mixture of flour and water be kept from running over in the oven. N.

Potato Prospects in East Suffolk.—The recent heavy rains in this district have been of great benefit to the Potato crop, but warm weather is now much needed to assist the tubers to swell off and mature. The haulm of most varieties is just now looking very healthy and vigorous, except where injured by the hail storms that passed over portions of the country on the 18th of June. Although the injury resulting from the above does not appear to have spread over a wide area, the storm was very severe in several parts of this county, and appears to have been felt the most at Hardwicke, near Bury St. Edmunds, where it did considerable damage. The foliage of Potatoes, being rather tender just at that time, were much lacerated, and the stems were pitted and bruised in a manner that might have led one to suppose they had been fired at with small shot. I have heard of disease having made its appearance in different parts of this district; but, as yet, I have not seen any symptoms of it in our immediate neighbourhood. The so-called new American disease is showing itself on some of the American varieties, but, in every case where the tops of these are failing, I find that either a maggot is at work at the stems just above the set, or that they are suffering from the effects of a previous attack; but why the American varieties should suffer from the attacks of this insect more than any other I am quite at a loss to determine. Such early sorts as Myatt's Prolific and Fortyfold are unusually fine this year; and, should the disease only keep off, the late crop will be equally abundant. The Red Regent is the most robust-looking late variety grown in this district, and is highly prized by the cottagers on account of its great productiveness and good keeping qualities. It appears to like plenty of moisture, so that the present season will suit it, and the poorer classes who have grown it will have an abundant supply of Potatoes that will go far to help to tide them over the next winter.—J. Sheppard, *Woolverstone.*

Potatoes and Wireworms.—On examining the Potato crop here, in Queen's County, Ireland, the other day, I found wireworms in the haulm, and the plants in many cases diseased. In others I observed numbers of blackish-coloured slugs; most of the plants I could lift off the ground without disturbing the soil, and, on digging up the tubers, I found that several had rotted away. They have a bad smell, but that is only apparent on examination. The varieties most affected here are the Ashleaf Kidney and Flounders. Those not attacked by disease are looking well, and yield on an average ten tubers, fit for table, to each plant, but I have counted as many as seventeen or eighteen fair-sized tubers to a plant. The weather here, for the past six weeks, has been cold and rainy, the temperature ranging from 38° to 50.° This morning (13th July) the thermometer went down to 35°, and only rose to 42° at noon, the wind blowing from the north-east, and very cold.—J. F.

The Quassia Tree.—Dr. Baillon has just presented the Horticultural Society of Paris with a specimen of Quassia excelsa, a very rare tree, and at present, perhaps, the only one in Europe. The history of this solitary individual is curious; it was reared from seed in 1868 by the late Dr. Barillet-Deschamps, who gave it to the garden of the Faculty of Medicine; and it is highly probable that the seeds came from Martinique under the name of Bittera febrifuga. Hence it was not easy to determine the real nature of the young plant, its only characteristic being the extreme bitterness of all its parts, the leaves especially. As it was supposed to require great warmth, it was kept in a hot-house, where it got on very poorly, until a Prussian shell fell into the place (January 20th, 1871). The following night being excessively cold (it may be remembered that the winter of that year was one of the severest on record), all the plants cultivated there perished except this. Its terminal bud having been lopped off by one of the splinters of the projectile, it was picked up and examined, when it was found to contain a flower presenting all the characteristics of the family of Rutaceæ. The plant was now transferred to an Orangery, where it recovered and throve well; it put forth a quantity of leaves in the following spring, and since then it has been growing and producing female flowers every year, so that, to propagate it, a male specimen has to be found. It is a common tree in Jamaica, where it attains a height of 60 feet, and goes there by the name of "Bitter Ash." It is exported in logs known in trade as "yellow quassia;" they are made into goblets on the turning-lathe, and these are sold under the well-known name of "bitter cup." The shavings are also much in demand for infusions exceedingly beneficial to weak stomachs. They are used in the manufacture of beer; and, as for the wood itself, it is also made into boxes for preserving furs from moths, which shun such receptacles on account of their bitterness.

Underhill's Sir Harry Strawberry.—At the Richmond Horticultural society's show which took place the other day Messrs. Steel exhibited a large tea-tray covered with fine fruit of this Strawberry, amounting in all to over 200 berries. They state that this is a good and most productive variety, and the fruit shown seemed to amply confirm their statement.—A. D.

A Suggestion in Reference to Labelling Roses.—It is always difficult to maintain the labels on Rose trees in a state of legibility, and it occurs to me that if the nurserymen who sell them would attach to each tree one of the new imperishable labels, the purchaser would gladly pay a penny extra for each Rose so labelled. It is not worth while for small gardeners to buy say a hundred labels of Baroness Rothschild or La France, but for the nursery gardeners it would be, and, whilst making a profit upon the labels if supplied, as I have suggested, with the Roses sold, they would confer a benefit upon the public.—An Amateur Rosarian.

Sutton's Giant Emerald Marrow Pea.—This is a giant form (though only so far as the colour of the haulm and pods are concerned) of Sutton's Emerald Gem, being much superior to that excellent variety both in produce and flavour. Here it has grown to an height of 7 feet, and is well furnished with pods (containing from eight to nine Peas) from top to bottom. In flavour it is all that could possibly be desired, and retains when cooked that beautiful light green colour peculiar to Emerald Gem and Danecroft Rival. I consider it a valuable acquisition to our list of vegetables.—W. W., *Heckfield.*

Lilium superbum at Home.—Probably such of our readers as cherish this fine hardy plant among their choicest garden treasures will envy the "mower" mentioned in the following paragraph from the "Albany Cultivator":—"The most gorgeous of all our meadow flowers is the Turk's-cap Lily (Lilium superbum). It generally grows in wet places, often in or near a ditch, and attains a great height. I have seen it in a neighbour's garden on dry ground scarcely less luxuriant—5 feet high, with a great number of gorgeous reflexed flowers on every plant. The blossoms continue a long time in the garden, but in the meadows usually meet an untimely end at the hands of the mower, who seldom cares enough for botany or beauty to preserve or transplant them.

SOCIETIES AND EXHIBITIONS.

ROYAL BOTANIC SOCIETY.

Evening Fete.

This Society has now been established thirty-six years, but this was only the fourth occasion on which a night *fete* of this kind had been arranged by the Council. In 1872, when the evening gathering was inaugurated, it proved a failure, owing to a severe and sudden storm; but in the two following years the *fete* was held with the greatest success, the weather on each occasion being all that could be desired. On Wednesday, however, the drenching rain which fell continuously from noon till midnight either entirely spoilt or greatly impeded all the arrangements which the Council had made for the entertainment of their guests. But for the wretched state of the weather 7,000 persons and upwards, judging from the number of tickets issued, would in all probability have attended the *fete*. At midnight barely 3,000 had passed the gates. The grounds were illuminated with gas, and in the conservatory, tents, marquees, and other parts of the gardens various prettily-arranged devices in lighting were exhibited. The American tent was lit with new and picturesque patterns of Chinese lanterns, and the covered walks, bridges, and other special features of the garden, as well as a design upon the larger mound, were lined and marked by chains of lamps. Electric lights were placed on the conservatory, the anemometer tower, and the flagstaff, and their reflection was visible for miles round.

Table Decorations, &c.—In spite of the heavy rain, a large number of dinner-table and other floral decorations were staged. The five semi-circular spaces around the fountain in the exhibition tent were entirely filled with crimson, white, and yellow Roses, from Mr. W. Paul, the whole being margined and separated into groups by means of lines of the Mustard plant, which, being of a fresh green colour, formed a by no means inefficient substitute for Selaginella. Several very tastefully-arranged hanging baskets were suspended in the exhibition tent, one of which struck us as being very effective. This was filled with Caladiums, yellow Calceolarias, pink double-flowered Pelargoniums, the margin being fringed with Panicum variegatum and Maiden-hair Fern. The chains on which it hung were wreathed with Cissus discolor. This came from Messrs. Dick Radclyffe & Co.; and Mr. J. Hudson and Mr. E. Wheeler also showed effective baskets, filled with white-sepalled Fuchsias. Some well-arranged jardinettes were placed in the conservatory, one from Mr. Hepper being filled artistically with Caladiums and Alocasia macrorhiza, a highly-coloured plant of Dracæna terminalis being in the centre; while the margin was fringed with Isolepis and Panicum variegatum. The jardinette itself was nearly entirely concealed, and the base was covered with dark green Moss, on which a plant of Gasteria verrucosa was placed with excellent effect. Groups of plants suitable for recesses in rooms or conservatories came from Mr. Wheeler, Messrs. Dick Radclyffe, and others. The last-named exhibitor had a fire-place decorated with white Lilies, Sedum Sieboldii, Moss, and white Water Lilies, the base being fringed with Selaginella, and the mantle-piece covered with Roses and other fragrant flowers resting on a base of fresh green Ferns; this was a novel and excellent arrangement. Dinner-table decorations were well represented, but they were so much alike that we purposely allude only to the most original and distinct. Miss Hecker had a table, in the centre of which was a tall pinnate-leaved or plumose Palm, supported on either side by a well-grown specimen of Grevillea robusta, one of the most graceful and effective of all cut-leaved plants. The bases of these plants were concealed by conical banks of fresh green Ferns and foliage mixed with Roses and Water Lilies. Water Lilies, it may be mentioned, were used in nearly every arrangement shown, as were also wild Grasses and rosy and white Rhodanthes. Miss Edith Blair's table decorations were simple and effective. They consisted of a central trumpet-shaped vase filled with wild Grasses, white Rhodanthe, Dipladenia Boliviensis, the margin of the trumpet being fringed with pendent branches of a scarlet-flowered Begonia. This was supported by two plants of the bright green feathery-leaved Acacia lophantha. The leaves of the central vase, and of the plants used in this case, were concealed with fresh Ferns, Grasses, Roses, Eucharis, and blue Larkspurs. Mrs. Seale's table struck us as being a very tasteful one. It was furnished with three March stands, in which the slender sprays of a white-flowered Bell-flower was conspicuous among white Water Lilies, Stephanotis, Corn-flower, and blooms of blue Agapanthus. Between the March stands were two smaller vases filled with Orchids, scarlet Begonias, and Ferns, while four shallow glass baskets of living Sphagnum and Ivy leaves were enlivened by little sprays of a small white-flowered Campanula. Mrs. Hudson's table, a very pretty one, consisted of a graceful Cocos Weddelliana in the centre, wreathed with Lygodium, the base being concealed with Ferns, Grasses, Ixoras, and Bell-flowers. The end trumpet-shaped vases were filled with wild Grasses and the slender spikes of Chelone barbata, the scarlet flowers of which shone out under gas-light with excellent effect. The margins of the glasses were draped with scarlet Begonias and two or three of the drooping spray-like flower-spikes of Dendrochilum filiforme, the stems of the vases themselves being wreathed with the common blue Passion-flower, and their bases decorated with conical mounds of Water Lilies, scarlet spathes of the Flamingo plant, wild Grasses, and blue Corn-flowers. In the open class for lady or gentlemen competitors, Mr. Chard had an effective arrangement, composed of plumose-leaved Cocos in the centre, supported on either side by slender trumpet-shaped vases, tastefully filled with wild Grasses, orange-spotted American Lilies, with Roses and spikes of a blue Veronica at the base. The base of the central Palm was hidden by a bank of Ferns, Grasses, Water Lilies, Pelargoniums, and blue Corn-flowers. Mr. W. Buster's table, which was effectively decorated, contained five trumpet-shaped vases, arranged in a line down its centre. The central base consisted of wild Grasses, enlivened by the scarlet-flowered Chelone barbata and a bank of Ferns, on which the white spathes of Richardia contrasted with the scarlet clusters of Kalosanthes coccinea, which is one of the most effective of all succulents. The two central vases were filled with Grasses and white Bell-flowers; the stems were wreathed with the scandent Adlumia cirrhosa, the trumpets being fringed with rosy Begonias. The end vases were filled with wild Grasses and cut sprays of the scarlet and white-flowered Clerodendron Balfouri, with Plumbago capensis and Balfour's Clerodendron at the base. Some rather pretty floral arches were staged, that from Messrs. Dick Radclyffe & Co., to whom the first prize was awarded, being very effective. A pretty one consisted of slender sprays of the common Asparagus enlivened with Stephanotis and the mauve-coloured Bougainvillea, and one composed of white Lilies, Pelargoniums, and foliage plants, was also very pretty. Many of the tables were, unfortunately, spoiled by wind and rain.

Sideboards or Buffets.—Of these some pretty arrangements were set up. Mrs. Burley had a group consisting of one March stand and two vases exquisitely arranged with Water Lilies, Maiden-hair Fern, blue Corn-flower, and rosy Rhodanthe, the upper vases being lightly filled with wild Grasses, slender white Canterbury Bells, and blue Corn-flower. The pure white Water Lilies at the base of the central vase were fresh and lovely. At each extremity was a black vase containing a plant of the white-spotted-leaved Richardia, the soil being hidden from view by means of fresh green Selaginella, on which were laid three flowers of Water Lilies, the whole being backed up with three fresh green Ferns in pots. Miss E. Harris had a charming group of Ferns and Palms. Here a plant of the yellow-stemmed Latania aurea, flanked by two examples of Weddell's slender Cocos, had an excellent effect, and two plants of the slender Pteris tremula and four plants of a crimson-leaved Begonia shone out well under the gas-light. Few cut flowers were employed in this case. Miss Edith Blair's arrangement for the side-board consisted of a March stand of two tiers, and a vase-shaped trumpet, tastefully filled with fresh Ferns, white Stephanotis, wild Grasses, and trusses of the bright scarlet Kalosanthes coccinea. This stand was flanked by two small plants of the elegant green-leaved Dracæna congesta, on a mound-shaped base of Maiden-hair Fern. Messrs. Williams and Bach showed some dinner table decorations not for competition. Some button-hole bouquets and floral wreaths were furnished by Mr. James Bromwich. Six or eight attractive wedding bouquets were staged, nearly all of which were composed of white Bouvardia, Eucharis, Roses, and Maiden-hair Ferns.

Horticultural Exhibition at Brentwood.—Two very fine plants of Erica obbata were shown here the other day by Mr. Walker, who also staged good examples of Caladium Lowii, Latania borbonica, and Cibotium princeps. Mr. Lane, gardener to General Fytche, exhibited Dasylirion (acrotrichum and Lomatia hetrophylla in excellent condition Well-grown zonal Pelargoniums were shown by Messrs. Burly and Meadmore; and some Tricolors, furnished by the same exhibitors, were finely coloured. Cut Roses, contributed by Mr. Cant, of Colchester, were all that could be desired. The amateurs twenty-four Roses, for the president's prize (a silver cup), were also good. Fruit and vegetables, both from gardeners and cottagers, were also good.

OBITUARY.

We have to record, with regret, the death of Mr. Peter Wallace, which occurred a few weeks ago in Ceylon, where he had for some time been engaged in Coffee culture. Mr. Wallace commenced his horticultural life at Chatsworth, in Sir Joseph Paxton's time, and in 1846 he accepted an appointment at St. Michael, where he was one of the first to introduce the culture of Pine-apples into the Azores. After about six years' stay there he returned to England, and went out as Government gardener to the Island of Ascension in 1853, returning to this country in 1857. In 1859 he obtained an appointment as superintendent of the Viceroy's gardens in Egypt—a position which he held until 1862, when he went out to Ceylon, and returned to England in 1869, settling in Texas in the same year. In 1873 he again went out as manager of a Coffee plantation in Ceylon. He was an able and intelligent horticulturist.

Plucking a Flower.—A correspondent at Spalding, in Lincolnshire, sends to the "Pall Mall Gazette" the following extract from a local paper, reporting the proceedings at the petty sessions there, the other day:—"Sarah Chandler, of Spalding, was charged with damaging a Geranium plant by plucking a flower therefrom. Sentenced to fourteen days' imprisonment and four years in a reformatory." It is not stated in the report that Sarah Chandler had previously borne a bad character, and our correspondent states that the sentence has excited considerable indignation. The circumstances (he adds) are as follows:—"A little girl, aged thirteen years, had gone to see her aunt, who resides in an almshouse in the town, and on leaving the house had, as children often will, fallen in love with a Geranium, and had plucked a flower therefrom, thus causing the damage for which she was prosecuted." The magistrates were the Rev. E. Moore, the Rev. J. T. Dove, and Messrs. A. Ball, T. Harrison, and C. S. Taylor. [Since the foregoing has been in type, this matter has been brought under the notice of the Home Secretary, who has remitted the sentence.]

No. 192.] SATURDAY, JULY 24, 1875. [Vol. VIII.

> "This is an art
> Which does mend nature: change it rather: but
> The Art itself is Nature."—*Shakespeare.*

THE ROSES.

In my "Thirty Years War," the war of the Rose against frost and fungus and fly, I do not remember such a successful campaign as this of 1875. A propitious spring, and a cloudy summer with refreshing rains, have given vigour to the plant, and size and colour to the bloom. Old favourites, which we thought were degenerate, but which were only suffering from the untoward weather, prevalent in our latter springs, have appeared in all their primeval beauty, and even old trees, weakly, and, as we thought, moribund, have astonished us, like grandfathers dancing at a wedding, with their performance, sharing in the general joy, and seeming to say to us, "See, there's life in the old dog (-Rose) yet!" What grandeur, what splendour, we have now in our crimson Roses! what a substance of petal, and what a glow of colour withal! in the darker varieties, with their purple and scarlet tints, such as Charles Lefèbvre, Royal Charlie, King of Roses, Duke of Edinburgh, aflame with vivid glory—the Rose, which as you survey the Rose-garden, when the sun rises or sets on it, is most likely to affix your gaze—Exposition de Brie, Fisher Holmes, Lord Macaulay, Louis Van Houtte (Cranston showed a bloom at Nottingham, and I have a *fac-simile* now in my budding-ground, which would melt a garotter into tears), Madame Victor Verdier, Maréchal Vaillant (one of the most faithful Roses in cultivation, both for abundance and excellence), Pierre Notting, lovely as large; Prince Camille de Rohan, rich maroon, seldom having symmetry or size for exhibition, but beautiful in the bed or the bouquet; and Xavier Olibo, with its large, dark, velvety petals, flushed with crimson fires. In Roses, a few shades lighter than these, what noble flowers we have admired and admire, in Alfred Colomb—great as our own Alfred—and glowing like the fire with which he burnt the cakes; Annie Wood, or rather Anne, for she has appeared in this gracious season without the eye, which sometimes disfigures; Claude Levet, with its clear crimson complexion and regular graceful outline; Comtesse d'Oxford, having almost a superfluity of mixed colours, rose, red, and purple; Dupuy Jamain, exquisite in all points; Dr. Andry, a picture of glowing health, as all doctors should be for the encouragement of their patients; Docteur du Chalus, who has set up next door to him, and, being young and handsome, is already a favourite; Duchesse de Caylus, ruddier than a Cherry, and almost as round; Ferdinand de Lesseps, no longer an entered apprentice, but a master mason; François Louvat, an admirable flower, but a little injudicious sometimes at our shows, in opening his heart to strangers; staunch old General Jaqueminot, still in the van, with a staff of his own sons around him; Horace Vernet, bright as his Roman namesake, when he had just finished an ode or a goblet; John Hopper, smiling more brightly than ever on his honest, handsome old father, Jules Margottin; and then "a Dream of Fair Women," Mesdames Marie Baumann (she took precedence of all, the last time I assisted in awarding the first prize to "twelve blooms of the same variety"), Boutin, Clemence Joigneaux (a Rose which I should give, with Gloire de Dijon and Maréchal Vaillant, to a beginner, for bloom they would, whatever he did, or wherever he put them), George Schwartz, Marie Rady, the Woods, Charles and Louisa; and, descending again to the coarser sex, Leopold Hausberg, a rare combination of good looks and modesty, for he ever hangs down his beautiful head, Leopold the First, and Maurice Bernardin; Olivier Delhomme and President Thiers (you must vacate the chair, and say *place aux dames*, Mr. President, when the Countess of Oxford approaches); and, keeping best for last, as they do at the fireworks, glorious old Senateur Vaisse (a senator, who is liberal with his multiplicity of blooms, and conservative in retaining all his ancient glories) and Victor Verdier, that hale hero, whose victories and whose verdure never fail. Passing now to flowers of the Rose roseate, of the colour which we specially designate rose, what charming specimens we have seen and see of Annie Laxton (all honour to him who has sown so carefully and is now reaping so richly, as we shall hear by-and-bye—my worthy friend, Mr. Laxton); Edouard Morren, a fine weather sailor, collapsing in times of storm, but, in his integrity, a delightful Rose; Emilie Hausburg, always looking as though she had just left her toilet-table, "dressed within an inch of her life"; Duchesse de Morny (as shown by Mr. Baker at the Crystal Palace Show), the pink of fashion and the mould of form; Madame Boll, as imposing and stately as Madame Fillion is *mignonne*, pretty, and real; Madame Thérèse Levet, uniting the charms of both; Marguerite Dombrain, the presentment of "a simple maiden in her prime;" and Marquise de Castellane, the presentment of a large and lovely matron at the same period of life; Monsieur Noman, a giant warrior, on parade, in uniform; and Monsieur Paul Néron, a giant also, but in the smoke-room, and with his dressing-gown thrown back from his ample form. Then, turning to our paler beauties—to Roses "pinky-white," or blush—how perfect, in her quiet but queen-like beauty, is the Baroness; how like a winsome lady-in-waiting is the Duchesse d'Orleans; and how exquisite, ere it expands, and on the eve of rosehood, the younger Miss Blair, sometimes vulgarly termed Blair's Number Two; what fair Maids of Honour, Elie Morel and Eugénie Verdier, aglow and flushed as though the Rose of her heart had just whispered, "Sweet Eugénie, be my bride;" how faultless La France, not satisfied with the homage of your eyes, but enthralling your nose also; the dainty, delicate Marguerite de St. Amand; the refined Marquise de Mortemart; and the pretty pink Princesses Beatrice and Mary of Cambridge. And now, of Roses new and Roses newest, which have been the best? Of the former, Etienne Levet (well does the raiser deserve his crown, or *stephanos*, which the name suggests!), both in foliage and flower one of our grandest Roses; François Michelon, capable of a size and symmetry which I have not yet seen at our show; Madame Hippolyte Jamin, a very welcome and precious addition to our scanty stock of light-coloured Roses; and Marie Cointet, silvery-pink, exquisite in colour and shape, and verifying, as exhibited by Mr. Bennett, of Salisbury, at the Crystal Palace, the praise bestowed upon it by Mr. George Paul, of Cheshunt, in his Catalogue of Roses, for 1874-5—"the prettiest Rose of last season." Of the latter, the Roses to me newest, I elect Captain Christy, as likely to be, when established in our gardens, a most attractive and fine blooming Rose, like, but distinct from, Eugénie Verdier; Duchess of Edinburgh, a Rose of excellent habit, qualified to brave all weathers, and to bloom abundantly; Etienne Dupuy, of good form, though perhaps a little dull in colour; Madame Nachary, very large and beautiful, in the style of Louise Peyronney; Marie Finger, a well-shaped Rose, in the likeness of Eugénie Verdier, but, as I saw it, more cupped in form; Thomas Mills, a bright, handsome, carmine Rose, sure to be popular; and my own namesake, Reynolds Hole, which, in congenial weather is not excelled as a dark Rose. Mr. Turner, of Slough, has some admirable novelties—Beauty of Slough, Miss Hassard, Oxonian, Rev. J. B. Camm, and others. Messrs. Paul, of Cheshunt, have a great acquisition in Sultan of Zanzibar, and in Brightness of Cheshunt, as shown at Nottingham, the most vivid of all the scarlet Roses; and Mr. Laxton introduces two excellent new Roses, Mrs. Laxton and Emily Laxton, the latter resembling M. Noman in form, but being of a much deeper rose colour.

Caunton Manor. S. Reynolds Hole.

Self-sown Japanese Primulas (P. japonica).—Of these we have thousands, which come up of their own accord. Planted in shrubbery borders, and mixed with common Primroses, Bluebells, and similar plants, they have a fine appearance. We have used the purple variety in this way, and I believe it will soon be quite as common and hardy as our native Primroses.—H. M., *Cornwall.*

Triteleia laxa.—Those who are not growing this Triteleia will find it well worthy a place in their herbaceous borders. Unlike T. uniflora, in having only a solitary flower on a stem, T. laxa has a large umbelliferous head, somewhat resembling an Alströmeria. In colour, it is a pretty shade of blue, and it will be found very useful for cutting, as it lasts well in that state.—J. Sheppard, *Woolverstone.*

Anthemis Kitaibelii.—This composite is now a pretty object in the mixed border. It grows rather tall, and requires to be neatly staked. Its large, pale, lemon-coloured, Daisy-like flowers are very showy. In this class Inula glandulosa has just been finely in flower, and is now well succeeded by Telekia speciosa and Coreopsis lanceolata; and, when these are gone, Inula Helenium and Coreopsis auriculata and philadelphica are ready to take their places. All have large, showy, golden-rayed flowers.—H. Harpur Crewe, *Drayton-Beauchamp Rectory, Tring.*

NOTES OF THE WEEK.

—— The copious rainfall which we have had, has, as usual, favoured herbaceous plants, and, in London gardens, these now present the glossy vigorous appearance which they generally show in moist or elevated districts. This points to the good that would arise from mulching, in dry seasons, borders devoted to these plants.

—— We are pleased to report that the absurd mud-edgings, to which we had so often to allude during the past few seasons, have wholly disappeared from the West-end parks.

—— One of the prettiest and rarest of all bouquet and button-hole flowers now in season is Peperomia resedæflora. This plant bears tiny spire-like spikes of white flowers at the apex of pink stems, the lower portions of which are clothed with small velvety leaves.

—— The beautiful Lilium longiflorum is this season almost as common in Covent Garden Market as the old white Lily—one of the many signs that the finer kinds of hardy flowers are beginning to find their due place in our gardens.

—— Strawberries have rotted very much during the recent rains, and the growers of them for the market have lost heavily. During the past week the variety which has seemed to come freshest through the deluge of mud and water is the Elton Pine.

—— A Dublin Correspondent sends us details of the great sale of the late Mr. Bewley's famous collection of plants at Rockville. Owing to bad weather and other causes, the attendance was poor and buyers few. Want of space prevents us giving the prices, which, moreover, are not remarkable.

—— Messrs. Rivers have sent us, from Sawbridgeworth, specimens of the Bigarreau Monstrueuse de Mezel Cherry, a very large and delicately-flavoured Bigarreau. It is known in gardens under the name of Monstrous Heart, but is not nearly so extensively cultivated as it ought to be.

—— Oranges, at one time very scarce at this season, may now be had of very good quality in our markets. Among the best just now are those from Valencia. The culture of the Orange is increasing so rapidly in many different districts both in America and Europe that we shall, doubtless, soon have an abundant supply of them all the year round. It is, among fruits, the most useful on the whole to man and the most delicious.

—— Of some cut specimens of Pitcher plants, shown at South Kensington on Wednesday last by Mr. Thomson, one branch of N. distillatoria bore seven fine pitchers, some of which were fully a foot long and about 3 inches in diameter at the mouth. We need not add that they were remarkable examples of good culture.

—— Mr. Wills is to carry out the floral decorations on the occasion of the Prince of Wales's visit to Sheffield. He proposes to use several miles of wreaths and many tons of ice. The cold rains remind us that some substitute for our lost sun-heat, however feeble, would greatly aid floral decorations in 1875.

—— An international fruit show is to be held at the Alexandra Palace, Muswell Hill, on Thursday, Friday, and Saturday, September 2nd, 3rd, and 4th, of the present year. The schedule contains nearly a hundred classes, and the prize money amounts to some £500. All enquiries concerning it are to be addressed to Mr. McKenzie, Alexandra Palace, Muswell Hill, of whom schedules may be obtained. Entries cannot be made after the 26th of August.

—— Our common Corn-flower (Centaurea Cyanus) is now sold in abundance in Covent Garden, where, on flower-market mornings, its Gentian-like brilliancy, when tied in large bunches, is very conspicuous. By the way, we may relate here, that when the Emperor of Brazil paid a visit to Professor Owen, at Sheen, he expressed himself charmed with the beauty of some scattered tufts of this plant in his garden. We mention this, not from placing more value on His Majesty's opinion than on that of other people in such matters, but it is interesting when we consider the splendour and variety of the flora of the region over which he reigns.

—— It is interesting to note the growth in public favour of the Tomatoes in the London markets. Only a few years ago they were what salesmen call a "fancy article;" now every year shows an increase in the demand for them, and they are a common product even early in the season. Large supplies now come from Paris and from Lisbon; these last very large monstrous-looking fruit, packed in sawdust. The Tomato, however, soon suffers from travelling, and much of this foreign fruit is not so agreeable to the palate as freshly-gathered Tomatoes. Although our climate is too cold for their successful culture in the open air over large portions of the country, we, nevertheless, believe that if the numerous opportunities our glass houses, pits, and frames offer for cultivating them were taken advantage of, we should have an abundant supply. The number of glass houses, frames, &c., empty and half-empty during the summer months, offer means of growing, without trouble, what some consider the most delicious and wholesome of vegetable products.

—— One London market gardener, for weeks past, has paid £90 a week to women for gathering Peas.

—— A fine specimen of the variegated variety of New Zealand Flax is now in bloom in the Lucombe Nurseries, Exeter. The spike is erect, and some 9 feet in height.

—— The Delaware Peach growers, at their recent convention estimated the present year's Peach crop, judging from present appearances, at 6,000,000 baskets.

—— The Royal Horticultural Society has awarded Mr. Worthington G. Smith its gold Knightian medal for his discovery in connection with the Potato Fungus.

—— The smallest plant at the Royal Horticultural Show on Wednesday, and at the same time one of the most effective, was the Coral-berried Duckweed (Nertera depressa) shown by Messrs. Rollisson & Sons, of Tooting.

—— Yuccas are now rising into stately bloom in the avenue gardens in the Regent's Park, where they will, for many weeks to come, form a fine feature. Here they show well the capacity of certain plants to modify the effects of objectionable geometrical gardening.

—— The blooming period of Delphiniums and not a few precious races of hardy plants is prolonged, and their appearance otherwise improved, by the removal of the seed-pods at a very early stage. Frequent cutting of the flowers of many plants when at their best also tends to prolong the season of flowering.

—— The men under our clever correspondent, Mr. Gilbert, of Burghley Gardens, have just presented him with an arm-chair! This reminds us that ruling with an iron rod is not essential to the highest success in garden management. We trust an ink-bottle may be within reach of the chair so that The Garden may continue to receive a fair supply of Mr. R. Gilbert's pithy notes. No man knows better than he does how to grow the best vegetables and tell all about them in very little space. "Gilbert on the Kitchen Garden," would form a handy volume for the waistcoat pocket.

—— The splendid collections of plants and fruits shown at Kensington on Wednesday last well show the public spirit of our nurserymen, the skill of our gardeners, and the willingness of both to support the Horticultural Society. The Council of the Royal Horticultural Society are likely to conclude terms with Her Majesty's Commissioners of the International Exhibition of 1851, and the terms are said to be fair to both parties, the Royal Horticultural Society being placed in such a position as will enable it in the future to pursue its course without conditions which formerly impeded its freedom of action. We trust the Society may be now managed in a way worthy of the art of gardening, and of the handsome manner in which it has been supported on this occasion by horticulturists.

Campanula pyramidalis.—This is one of the most useful and showy plants for conservatory decoration in June that it is possible to have. Seed of it sown now, or as soon as it is ripe, and grown on freely, will make strong blooming plants for next season. For border use it is equally valuable, and is the most effective of all the Campanulas.—J. Sheppard, *Woolverstone.*

A Sea-side Button-hole Bouquet.—I have rarely seen a coat-decoration that pleased me more than the following arrangement:—Take two expanded flowers of salmon-red or orange Alströmerias, with any buds that may chance to belong to them; put a short branch of Scotch Briar (foliage only) in front of them, and a longer branch behind, and work in amongst the group a few small pieces of Tamarisk.—W. T. P.

Potato Prospects in Devon.—The disease has spread rapidly the last ten days or fortnight throughout this neighbourhood—earlier and worse than it has been for some years, owing to the wet, cold, weather. In the cottagers' garden allotments, which are exceedingly well managed, some sorts are quite leafless. The early sorts, which usually ripen off before the disease sets in, are now the most affected, whilst the latest sorts are far from being free from taint.—John Garland, *Killerton, Devon.*

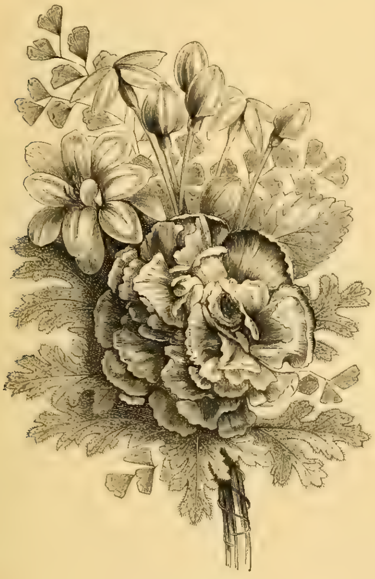
The Great Burdock.—Few, I am afraid, would put this in pleasure grounds, and yet I have seen there many less stately plants. One growing here on the margin of a disused gravel pit is the finest I have ever seen. It stands nearly 6 feet in height, and at the base is 8 feet in diameter—a perfect pyramid in foliage, and as fine a match for the Giant Parsnip as could be found. The leaves at the base are 2 feet in length and proportionately broad. Would it not be possible, in some of our large gardens, to set apart a space whereon to grow such specimens of hardy plants?—A. D., *Bedfont.*

Peaches with Split Stones.—Having a house of Peaches that are now ripening, many of them are spoilt in the stones, and in some cases rotting before they are thoroughly ripe. Some are split fairly in half, and one I found broken out on one side. Where the kernel is not rotted they appear to have commenced growing. Not having a full crop on the trees, I have given them waterings of manure-water to induce them to make fresh growth, which they are now doing. I observe that those planted in a well drained border, are not so much affected as those in pots, where they have been for some years, and have received an annual top-dressing, but some of the fruits are in the same condition. Will some readers of The Garden tell me if my practice is right, and, if not, say how I may do better?—J. W., *Oakfields, Leamington.*

THE GARDEN IN THE HOUSE.

BUTTON-HOLE BOUQUET FOR JULY.

It is much to be regretted that many pretty combinations and charming little bouquets must remain undepicted while the pencil of the artist and the tools of the engraver are alone available for conveying to the eye of the reader the appearance of the subjects which it is wished to describe. Until colour can be added to outline and shading, we must rest contented with the best attempts that we can produce in verbal descriptions, however much they may fall short of conveying a complete picture to the mind's eye. The accompanying woodcut gives a faithful representation of a dark Clove Pink, surrounded by two or three leaves of sweet-scented Pelargonium. Above it, on the left, is a single bloom of Tuberose, while on the right are four buds and two flowers of white Bouvardia. Two very small pieces of Maiden-hair Fern complete the bouquet, which, it must be remembered, is to appear on a background of black cloth. In order to keep everything in position until the bouquet is placed in the coat, a wired Rose leaf is put at the back, and one of its leaflets peeps out behind the Pink. It would, perhaps, be difficult to obtain a better effect with as little variety in form and colour with any other kinds of flowers and foliage. It is a "button-hole" that was selected out of a large collection at Mr. Dickson's, in Covent Garden. W. T. P.



Button-hole Bouquet.

Variegated Alder.—I have sent you some leaves of the common Alder (Alnus glutinosa) which, as you will notice, are beautifully blotched with gold. This sport, if it keeps true, as I have every reason to think it will, will be a valuable addition to ornamental trees. I shall watch its further development with interest, as a prettier or healthier branch I have never seen on any tree than the one from which I have taken the leaves in question. I may mention that the tree is a seedling raised in our nurseries; it is at present 4 feet in height, and the bottom part of it has leaves, when fully developed, 4 inches wide and nearly 5 inches long, and of the true deep green colour of those of the true Scotch Alder of our lakes and river margins.—J. F. McKenzie, *Tain.* [Along with this came Alder leaves beautifully blotched and mottled with gold.]

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Strawberries.—The late showery weather has been favourable to the growth of runners, and the earlier plantations of this fruit are made the better, as the stronger the plants get before winter, the more fruit may they be expected to bear next summer. Potatoes are a good preparatory crop to precede Strawberries; but whatever has previously occupied the ground, it should be quite free from perennial weeds, such as Couch Grass, or anything of a similar deep-rooted character. Varieties must be selected in accordance with the nature of the soil. Strawberries like strong heavy land in preference to that which is light, generally doing well where it almost approaches the consistency of clay, provided it is sufficiently drained to prevent the accumulation of stagnant water, for, when too wet, the plants die off in winter. The following, which are amongst the best for all purposes, will afford a succession, and most of them do well where this fruit can be grown at all. They are placed in the order of their ripening.

Keen's Seedling.—This is still one of the best early sorts, and will succeed where many others will not thrive.

Vicomtesse Hericart de Thury.—This is an excellent Strawberry, a good grower, remarkably free bearer, moderately early, and will succeed where many others will not. It is one that all should try.

Sir Joseph Paxton.—This is a prolific good-flavoured sort, hardy, and one that may be depended upon. It will also succeed where many will not.

President.—This is a very fine, good-looking, and free-bearing sort. It is early, and will succeed where many would fail.

Sir Harry.—A very high coloured, free-bearing kind, that will do on soils that are not adapted for many varieties. The fruit is a little acid, but, if it is allowed to hang on the plant until it is fully ripe, that is until it assumes an almost black-red colour, this disappears.

Sir C. Napier.—Fruit, large and handsome, firm and brisk in flavour, an immense cropper, well deserving a place in every garden. It is also a good grower.

British Queen.—This, where it will succeed, is not superseded by any other kind, but it requires a good Strawberry soil, and there are many situations in which it will not do at all.

Dr. Hogg is a good sort, not unlike the last named, but produces larger fruit and is stronger in constitution, succeeding in many places where the Queen would fail.

Frogmore Late Pine.—This is a large late sort of good quality, and is one of the best to follow the preceding kinds.

The ground for Strawberries should be well and deeply dug; for, although they are surface-rooting plants, it is best to have the land well stirred to a moderate depth; 15 inches is not too much, as, so long as the plants are allowed to stand after planting, there is not an opportunity of digging among them to any depth; in fact, the spade should not be used at all. If the land is poor, dig in a good dressing of rotten manure; on good strong soils they are best grown in rows 2½ feet apart with 2 feet spaces between the plants in the rows. In old vegetable gardens that have been long cropped the soil sometimes gets so light and full of humus that Strawberries will not succeed well in it; in such cases I should recommend a dressing of marl, or, if this cannot be had, 2 or 3 inches of clay laid on the surface for a month or so until it becomes pulverised by the weather, when it should be forked in about 6 inches deep; this will afford something which the roots well enjoy. In soils that are very dry, as well as light, after giving a dressing as just indicated, it is sometimes advisable to grow the plants in beds 4 feet wide, putting 4 rows in a bed; this will leave the rows 9 inches apart, allowing a foot between the plants in the row. By this means the ground becomes covered with leaves, which protect the roots from the action of the sun in dry weather, during which time they must be well supplied with water. Strawberries thus treated should not be allowed to stand more than two years. By this method they can often be made to succeed where they fail grown in rows in the ordinary manner. In all cases give the plants sufficient water until they have got fairly rooted. If well established early in the autumn they may be expected to bear a good crop of large fruit the ensuing summer.

Pears on Walls or Trellises.—When the season's growth has been completed, such shoots as are not required for laying in to fill up vacancies, should be removed, cutting them off at the base; for this nothing is better than a pair of strong hand nippers, such as are used for pruning Gooseberry bushes; the advantage of this implement over a knife for removing the summer growth consists in its doing the work more expeditiously, and in the branches not getting torn out of the ties or shreds with which they are fastened, as often occurs when a knife is used. What may be described as half-breaking the shoots off over the blade of the knife, is usually done with the view of keeping the trees from making a second growth, which must always be discouraged, as it would completely defeat the object in view, and place the trees in a worse condition than if the shoots had not been taken off at all until the winter pruning; the object in removing them at the present season is to induce the formation of plump and good buds for next year's crop, but, if the work is done too soon, instead of the ensuing crop receiving any benefit it will suffer, as well as the trees, by the would-be fruit spurs pushing into growth. Most fruit trees are later this season than usual in finishing their growth. Where it is the intention to keep pyramidal Pears within certain limits as to size, they should have their shoots thus removed, as well as Apples, Cherries, and Plums, either when trained or when they are to be kept dwarf. Apples and Pears, that make too strong growth, will have their superabundant vigour in part reduced by their summer pruning, as all removal of leaves, whilst green and active, reduces root power.

Tomatoes, Turnips, Endive, and Winter Onions.—The wet cold weather which we have had has been anything but suited to the growth of Tomatoes; on walls, keep them well thinned out, and closely fastened up, so as to enable them to get all the sun and light possible, which will promote a disposition to flower, otherwise the cold autumn nights will be upon them before they have time to ripen fruit in anything like satisfactory quantities. If they are growing over-strongly, do not give water until they flag a little, which will induce them to bear. Sow more Turnips now wherever room can be found, as it is important to get these in at once, or they will not have a chance to attain a useful size before winter. Also put in a little more Endive, both Batavian and Green Curled. Winter Onions should likewise be put in, in well-prepared ground, and in rows a foot apart. Globe and White Tripoli and Giant Rocca are the best.

Drying Herbs.—These should be gathered as soon as they begin to open their flowers. In drying them, two methods are employed; one is to tie them into bunches, as soon as cut, and hang them up in a room or shed; the other is to first lay them out in the sun to dry; by both these methods the quality is deteriorated. If fermentation takes place sufficient to discolour the leaves, such as occurs, more or less, when herbs are tied up in bunches whilst green and sappy, their best properties are destroyed. In confirmation of this, it is only necessary to point to the extreme care taken by the growers of Lavender, Mint, &c., for distilling; for such purposes they are not allowed to lie together, even for a few hours. If, on the other hand, herbs are exposed to the sun, much of their strength is dissipated; they become quite brown, and that fresh green appearance which they possess when the drying is well managed is destroyed. But when herbs have been improperly treated, loss of strength is not the worst result; there is always imparted to them a disagreeable flavour. In drying herbs, an open shed or room, where plenty of air can be given, is necessary. Stretch out a piece of netting, such as is used for protecting fruit from birds, wire netting, if at hand, will do; on this lay the herbs (which should be cut, when quite dry) thinly; thus treated, air acts upon them from all sides, and they dry quickly, which is the primary object, without losing their best properties. When perfectly dry, put them loosely in white paper bags, tie them up, and hang them where they will be free from damp, or they will become mouldy. Herbs, treated in this way, will be found to be but little inferior to such as are fresh cut. Sage should now be propagated by slips, taking off middling-sized branches, and inserting them moderately deep in the ground in rows, where they are to be grown; if the weather becomes dry, give them plenty of water until they are rooted. The advantage of growing Sage from slips or cuttings is that plants so produced have not such a disposition to flower as those raised from seed.

Indoor Fruit Department.

Vines.—Late varieties will now require to have their young growths pinched two and three times a week, as it is better to go over them frequently than allow the wood to grow for a number of feet and then remove it. Gros Colman, after being stopped the first time, never afterwards makes many young growths. The leaves of this variety are very liable to become shrivelled in autumn, before the fruit is quite ripe; therefore, in order to have the foliage fresh as long as possible, the lateral growths should be left three or four leaves in length. Every opportunity must now be taken to encourage the development of late Grapes, as one month of bright summer weather, properly utilised, is of more benefit than two later in the season. Grapes being now frequently transferred from one place to another, packing ought to receive careful attention. Grapes are, however, not so easily injured by travelling as some other fruits; but the bloom is apt to get rubbed, and without bloom the appearance of the fruit is deteriorated. Single bunches, or a few pounds, should be wrapped up in tissue paper and placed in a box made of half-inch deal, as near the size of the quantity it is destined to contain as possible. A layer of paper shavings should be laid along the bottom, and, as each bunch is placed in the box, a small quantity of the shavings should be placed between it and the next bunch, enough of the same material being laid over the top of the whole, before putting on the lid, as will prevent any of the bunches from getting displaced. Screws should be used for fastening down the lid, as they can be put in and taken out without shaking the box or splitting the wood. Baskets with close-shutting lids may be, and often are, used; but they are not so secure as the wooden boxes. When large quantities are being packed, no wrapping or stuffing between the bunches is necessary. If a lining of paper shavings be placed round the box or basket, and the bunches are laid closely against each other, they will travel a long distance, and stand much knocking about, without being in any way injured. This is the safest, easiest, and cheapest way of packing large quantities of Grapes.

Pines.—Large suckers, which were rooted a month or two ago, may now be shifted into their fruiting pots. They will make considerable growth before the end of the season, and, at the latest, will be in fruit by this time next year. Treat them as plants with no roots for a week or two after potting. As plants from which the fruit has been cut are thrown away space will be made to admit of thinning out, and re-arranging the young stock of fruiting Queens. The best plants generally are those which are grown far enough apart to prevent leaves from intertwining. Continue to pot suckers as they become fit for separation from the parent plants.—J. MUIR.

The Flower Garden and Pleasure Ground.

The present season, with its plentiful rainfall, has been favourable to the development of most kinds of bedding plants, and, although there may, in some instances, be a slight deficiency of bloom, should the weather improve, this will not long be the case. Each flower-bed should now be as perfect as possible. The time is close at hand when it will be necessary to propagate plants for next year. But before doing this it will be advisable to make a careful inspection of present arrangements, and note any faults that may be perceptible in order that they may not be repeated. It is also necessary to decide soon as to the intended arrangements for next season, so that the necessary quantities of plants required may be ascertained, and preparations made for their propagation, It is always advisable to do this in preference to proceeding in a hap-hazard manner, the result of which is not unfrequently more plants of some kinds than are really required, and a corresponding deficiency of others, a circumstance which very often prevents contemplated arrangements from being properly carried out. It is always advisable, however, to prepare a sufficiency of plants for the different beds, and, if we err at all, it is best to do so on the safe side. The late showery weather having been exceedingly favourable to the growth of Grass and weeds it is necessary to keep the mowing machine or the scythe constantly at work. Flower-beds and gravel walks too should be kept free from weeds of all sorts. Beds planted in the carpet style will require unremitting attention to keep them in order, as some of the free-growing plants used for this purpose, such as the Golden Feather Pyrethrum, encouraged by the wet weather, are growing with unusual luxuriance, and are inclined to encroach unduly upon their more tender neighbours, such as the Alternantheras and Coleuses, which, on account of the comparatively cold and sunless weather recently experienced, have not made that rapid progress which they generally do.—P. GRIEVE, *Culford, Bury St. Edmunds.*

Rare Irises in Oxfordshire.—I. susiana is out of flower now. It is quite hardy here, though no doubt it does better in a pit. How is it that we see so little mention of I. iberica? It is supposed to be rather a difficult plant to manage, but we find it do well here in ordinary sandy loam. The flower is by a long way the best I have seen; much superior to I. susiana, of which at first glance it reminds one. It blooms about the beginning of May; the flower is of enormous size, and the plant only about 10 inches in height. I. Kæmpferi and its varieties are very good, and will be in bloom in a day or two. Messrs. Henderson have a fine collection in their Wellington Road Nurseries. To attempt to mention many of the best Irises in my garden would be too long an undertaking; but I cannot refrain from a tribute of praise to I. ochroleuca, which is now past its best. There is a large patch of it here in a moist border (and moisture is essential to its full development) which is 5 feet in height, crowded with cream-coloured flowers, with yellow markings. It is quite distinct, and is an indispensable plant. I. sibirica, and its white varieties, are good, and will grow in any wet and bad soil. I. germanica, and its numerous varieties, we have growing in, I might almost say, thousands, about the wild garden.—OXON.

THE FRUIT GARDEN.

HEATED WALLS *v.* GLASS CASES.

Flued or heated walls were at one time serviceable garden structures, but cheap glass and other circumstances have tended to bring them into disrepute. Owing, however, to the improvements which have been effected in hothouse building in recent times, and more especially in wall copings, which are now almost a substitute for glass screens, and comparatively inexpensive, heated walls assume a new aspect, and I think it can be shown that such structures, with the aid of copings, are quite as effective protectors as glass cases; in some respects, perhaps, better for trees, and certainly not half so costly. I may observe that some of the finest crops of Peaches ever produced were grown on flued walls with 11-in. board copings, and these were not chance crops, but were produced as regularly as the year came round by the judicious use of heated walls. It is recorded that a Mr. Harrison, in one of the coldest localities of Yorkshire, where Peaches would hardly ripen on an ordinary wall in the most favourable seasons, produced such enormous crops of Peaches, of excellent quality, and with such regularity that the Royal Horticultural Society deputed Dr. Nochden to visit Mr. Harrison, and report on his method of culture, which simply consisted of careful training, and protection by means of heated walls, and sometimes branches hung over the trees. This was forty years ago or more, and the Report will be found in the Horticultural Society's transactions of about that date. Other instances, too, could be furnished. I am acquainted with a garden in one of the coldest districts in the north of Scotland, where Apricots would have been a most precarious crop but for the flued wall. With this assistance the crops were regular and most abundant; the thinnings of the young fruit used to amount to basketfuls. It is not proposed here, however, to restore the old flued walls, but to heat walls in a more perfect and economical way by means of hot-water pipes; but first let us look at the comparative cost and utility of heated walls *versus* Peach cases or Peach houses, which they practically are nowadays. As to the protective power of regular Peach cases, glazed as they are now, from top to bottom, with ventilators back and front, so that they can be shut up at night, I can assert from experience that 7° of frost are as much as they will ward off under ordinary circumstances. And as the trees in such structures are unavoidably hurried into flower at a period in spring when 12° or 15° of frost are not uncommon, the crop is not unfrequently destroyed; and this fact has induced many to heat their Peach cases with pipes, thus turning what was originally intended as a cheap Peach case into an expensive house. It should be stated that during favourable weather in February and March, glass cases are hot structures in the daytime, and force the trees into flower and leaf sooner than is desirable; and they have consequently to be then pushed on, for stagnation of growth after the flowering stage is fatal to Peaches. This drawback is, however, avoided by heated walls, for the heat need not be applied till the trees start into growth at the natural season, when there is less danger of frost. Another disadvantage of glass cases is that in hot summers the crops ripen sooner than they are wanted, unless the ventilation is on an unusually ample scale. On the other hand, glass copings, 18 inches wide, are frost proof, I believe, up to 5° or 6°; it has been put as high as 10° and 12°, by practical cultivators, but that is doubtful, for a coping cannot do more than a regular roof. However, putting the protective power of the coping at 5°, and that of a heated wall at the same figure, we have a structure frost proof up to 10°—nearly twice as much as that afforded by a glass case. In other respects, the merits of a coped and heated wall and glass case are about equal; but, as regards the flavour and colour of the fruit, those on the open wall have no doubt the advantage, being always exposed to the air. And now as to the comparative cost of the system; judging from the estimates I have seen, and from the plans and specifications of a professional builder now before me, the cost of heating a wall by a coil of 3-inch pipes, and furnishing a glass coping 18 inches wide for the top, would be from 5s. to 7s. 6d. per foot run, more or less, according to circumstances; but, as a hollow wall is less expensive than a solid one of the same thickness, such as would be required for a lean-to Peach case, the actual outlay would be something less in the end. The cost of a complete glass screen of the cheapest serviceable description for a wall 13 feet high would be about 30s. or 35s. per running foot at present prices, not including front brickwork, if any, or supports—a vast difference when we come to speak of a Peach wall 100 feet long or so. The question has been stated fairly on both sides to enable cultivators to judge for themselves; but, granting the heated wall to be equal to the screen for Peach culture, its smaller cost will be sufficient to give it the preference whenever the object is simply protection from early or late frosts.

Whether for convenience or economy, hot-water pipes are best for heating a wall. The old flue system is cumbersome, inconvenient, and by it it is impossible to warm the wall as equally over its whole surface as pipes enable one to do. A space enclosed by bricks on all sides is easily heated, but to have a lasting reservoir of hot air the space should be as considerable as can be secured consistently with the stability of the wall. Any intelligent bricklayer understands how to build a hollow wall, which, to be heated with pipes, would require to be about 2 feet thick, the back of the wall being two bricks thick or 10 inches, and the front one brick. This would leave the inner cavity about 9 inches wide. To give stability, as well as to prevent the hot air from the pipes reaching the top too speedily, the wall would require to be secured by stone ties in the usual way—say three rows, excluding the coping stone—4 feet asunder. These stones or flags should be laid about 2 inches apart, to permit the ascent of warm air from the pipes, which would, of course, be laid along the bottom of the wall, and the stokehole would be at one end. A small boiler would heat a long brick wall, as the heat would accumulate rapidly between such non-conducting materials as bricks; and besides, the purpose is not to make the bricks hot, but only to communicate a warm glow to their outer surface during the time when the trees are in flower in spring, and in autumn when the wood is ripening. To facilitate training operations, and also to save the wall, the trees should be trained on a wire trellis; but, as Peaches ripen better close to the bricks than away from them, the wires should not be more than half an inch from the wall, which should not be whitewashed, but left its natural colour. As regards culture, it differs in no way from the usual method practised under glass. The object should always be to promote a vigorous growth, and to cut back as little as possible—a practice wholly unnecessary and undesirable except in the case of ill-matured wood, an evil only resulting from insufficient heat and too thick training. Flued walls after the old fashion have, perhaps, been most frequently employed in the north and in Scotland, where they not only benefited the trees, but used to be excellent protectors of early Lettuce, French Beans, and Potatoes, planted just within the influence of the radiation from the bottom of the wall, and I have seen in such places marvellous productions in the way of early seedlings of all kinds, such as the modern gardener does not think of raising anywhere but in his glass houses. In recommending heated walls, therefore, I am not proposing a return to an old or obsolete practice, but to one of proved utility that is capable of greater amplification with our present appliances than ever it has been at any former period. Peaches are still beyond the reach of all but the wealthiest classes in this country, for at the cheapest season they can seldom be bought worth eating under a shilling apiece, and this price hardly pays the grower taking one year with another. Any plan, therefore, which tends to cheapen this production, and at the same time to render crops more secure, if not almost certain, deserves attention. W.

GRAFTED STANDARD GOOSEBERRIES.

By growing Gooseberries in the form of standards their productiveness is increased, and the fruits themselves grow larger than I have ever seen them on plants that stood on their own roots. The stock on which the Gooseberry is "worked" in Germany, when it is grown as a standard, is Ribes aureum, a perfectly hardy shrub, often found in gardens on account of its little yellow sweet-scented flowers. To secure a large stock of this in the shortest possible time it is necessary to have or plant old bushes in good rich soil. As soon as the young bottom shoots get from 2 to 3 feet high, they must be covered with loose soil to the height of about 6 inches, so as to induce them to push roots from their lower ends. A few cuts in the bark, where such young roots should appear, will help their production materially. They should have plenty of water all through the dry season In August or the first part of September some trimming is necessary. Remove all the small and weakly wood in order to strengthen the remainder. Wherever two or three good top branches are found on one shoot leave them, and on such plants graft both Gooseberries and Currants, or different sorts of each kind. To make sure of getting stocks with branched heads, stop the required number of shoots at the proper time, when they are about 4 feet high. In autumn, when the plants have dropped their foliage, dig all around the old plants, and take off such young shoots as are strong and well rooted. They should then be potted in a soil that contains plenty of sand and leaf-mould; place them in a cold frame and cover them when the weather gets cold. About Christmas or a little after remove them to a green-house that is kept at an average temperature of from 45° to 55°, and in a short time they will make a start and can be grafted. As tying material use common paper spread over thinly with some grafting wax, and cut into narrow strips about 6 inches long. This is better than cotton or any other tying material. During the grafting, and after it is done, the house should be kept in a moderately warm and moist state, and must be shaded whenever the sun shines out brightly. In from two to three weeks the buds on the graft, as well as those on the stem, will commence to swell and the latter should be taken off as fast as they appear. A light sprinkling with tepid water must be given daily as soon as you see some leaves breaking on the scion. Thus they should be kept till all danger of frost is over; then take your plants carefully out of the pots and plant them out of doors in a nursery or in their permanent places. There they will require a few ties to suitable sticks to keep them straight and protect them against wind. Even the first year after grafting you may expect a crop of large showy fruit.—"Gardeners' Monthly."

BLACK-HEARTEDNESS IN ST. MICHAEL PINES.

I observe (see p. 54) that exception is taken to what I have stated concerning the evils that result to these Pines from having their stems placed in water during their transit to London, on the ground that my "opinions are not based on the examination of such St. Michael Pines as are known in the London market." Now, I distinctly stated that my opinions were founded on, first, a well known law of Nature, viz., that water would be absorbed by the fruit so long as its stem was in it in the warm hold of a ship, and that, less or more, decomposition would take place where this water mingled with the sugar in the fruit; and, in the second place, I stated that, from an examination of fruit that had come direct from the "London market," I found my theory amply confirmed; and I say, on excellent authority, that fruit in such a state is not only unwholesome, but dangerous to health. The writer of the paragraph in question must be aware that hundreds of these Pines come to hand in London, all but worthless, from the cause just assigned. As an example, take the results of one day's sale in Pudding Lane, where twenty-seven lots, of from one to ten Pines each, sold at an average price of something under 8s. each; many sold at 2s. and 4s. each; and, with the exception of one Pine, which made 36s., and which had a double anchor brand on it, no lot made more than 10s. 6d. each. This was on the 5th of April, 1875, a date on which I was getting 5s. and 7s. 6d. per pound for home-grown Pines. Will your correspondent say what he thinks caused this difference in market value? If he is interested, as I have little doubt he is, in the importation of St. Michael Pines, let him take a hint from what I wrote on this subject; it may be of advantage to him, it can be of none to me.

Tweed Vineyard. W. Thomson.

Registering Orchards.—New orchards and fruit gardens are very frequently made, and some of these contain many varieties. The labels are placed on the trees, and the owner has no difficulty in knowing each. But in the course of a year or two, and before the trees bear, these labels will be gone, and if he trusts to his memory, he will fail to remember the names. A few minutes of time spent in making a regular register of the names in some book to which he can always readily turn will save him much future trouble. This care is especially necessary where trees have been planted to fill vacancies, differing from those among which they stand.

Apple Trees from Cuttings.—Enquiry is made of us if the practice of inserting an Apple graft into a Potato and planting it, as we sometimes see recommended, will cause the graft to throw out roots and grow—the Potato furnishing moisture to the graft till it supplies itself with roots. We gave this method a trial in our early days, and in the course of a few weeks we found a profusion of roots at the lower end of the graft, but they were the roots of the Potato and not of the Apple. No other result was ever reached. The graft, however, may be made to throw out roots if inserted, not into a Potato, but into another Apple root, constituting what is known as root-grafting.

Pears Grafted on Apple Trees.—Can I get good Pears by grafting them on Apple trees.—Subscriber. [Very few kinds of Pears succeed when grafted on the Apple. The Pear branches usually break off, in a few years, at the point of junction. The only sort that we have ever succeeded in fruiting on the Apple, for many years successively, is the Summer Bon Chrétien—a coarse, second-rate Pear. If this sort is grafted in the centre of an Apple tree, so that the wind cannot break it off, it will bear fair crops for many years.]

Fruit and Leaf-buds.—A clear illustration of the influence of rank growth in preventing the formation of fruit buds, is shown by experiments made in Colorado, where the practice of irrigation is so common. Peach trees, which are irrigated the season through, continue growing late, and form but few fruit buds; when not irrigated, the growth is moderate and well ripened, and fruit buds are produced in abundance.

Affinity in Grafting.—"A. E." asks "how near must the affinity be between grafts and stocks, in order that they may succeed?" There does not appear to be a distinct rule, except that they must be nearly related. Usually the operation will succeed between species of the same genus, but this does not always hold true, for the cultivated Cherry will not take on the common wild Cherry. The Pear succeeds much better on the Quince (although they are of different genera) than on the Apple, belonging to the same. The texture of the wood seems to have more influence than mere affinity in this case. It is rare, however, for the operation to succeed between trees of different genera, although sometimes successful between those nearly allied of the same natural order. We often see extravagant statements by which the ignorant are imposed on. Some years ago a story went the round of the newspapers that if the Peach were grafted on the Willow, the fruit would have no stones. A similarity in the shape of the leaves led some to believe that grafting would succeed, though the two trees are far separated in affinity. The statement was true that there would be no stones, for there would be neither Peaches, stems, nor leaves. Some years ago we saw a "professional" grafter inserting scions of the Chestnut into trees of the Horse Chestnut. A similarity in the name, and a fancied resemblance of the nuts had suggested the attempt. The owner called to us, "Mr. T. can we graft the common Chestnut upon the Horse Chestnut?" Certainly, we replied. "Will they be pretty sure to grow?" "Not at all—they will never grow—belonging, as they do, to widely separated natural orders." The dead grafts remaining, showed the result.—"The Cultivator."

Canada as a Fruit Garden.—We have to acknowledge the receipt of the "Report of the Fruit Growers' Association of the Province of Ontario for 1874," a large pamphlet of more than 150 pages of unusually interesting matter. We observe that over £260 were expended in distributing trees and plants among the members for testing their value and adaptability to the different regions of the country, the reports from which will afford important information in future. The condensed information in this volume from different sources, of which there are twenty-four reports from Nova Scotia, constitute a valuable portion. About sixty pages are occupied with reports on destructive and beneficial insects, chiefly compiled from the best authorities. It appears that there are some portions of Canada admirably adapted to fruit growing, especially those regions protected by Lake Huron. Owen Sound sends very favourable reports, although in nearly 45° north latitude—being about the same as the Grand Traverse region in Michigan, receiving similar shelter from the north and west, and, like that region, admirably adapted to the growth of long-keeping Apples. From the address of the president, Mr. Burnet, we learn that even Peaches do well there on elevated and low hills, while, as has been long known elsewhere, they are failures on low, rich bottom lands. Its speciality, however, is Plums, as well as Apples. There is no curculio, no leaf-roller, no borer. In short, there can be no doubt that much of that portion of Canada which lies between the great lakes is capable of producing the finest of orchard and small fruits, as we ourselves, indeed, can testify, having visited the region.

Read's Scarlet-fleshed Melon.—This has fully maintained the high character which I received with it. It is robust in habit and produces foliage of great substance. It is most prolific, sets freely, and swells off evenly and well. Several plants of it in our early house here, ripened off eight fruits of 4 lbs. each; while those on which there were four and six fruits were nearly 6 lbs. each. It is a handsome fruit, finely netted, and altogether the best scarlet-fruited Melon with which I am acquainted.—J. Groom, *Henham.*

THE LIBRARY.

INSECTIVOROUS PLANTS.*

DR. HOOKER'S address to the British Association last year made the public aware that Mr. Darwin has been for a length of time engaged in the investigation of certain plants which he conceived to be endowed with insectivorous properties, and that a work from his pen, fully detailing the views and the facts on which they are founded, might soon be looked for. That work is now before us. Its main purport is to prove the proposition announced for him by Dr. Hooker, three-fourths of it being taken up with the facts, experiments, and inferences, drawn from one or two of the most strikingly-endowed species; but there is also a considerable amount of very interesting secondary matter relating to other allied species which he had examined in less detail. To give a fair idea of the book it would require to be viewed from two different stand points, one looking to the general question opened up by Mr. Darwin, whether the plants in question are carnivorous or not; the other accepting that position, and, on it as a basis, examining the different means by which the end is attained, or supposed to be attained, in different species. We have not space for an examination of the work from both points of view; and, therefore, as the abstract question has, perhaps, at this time most interest for our readers, we shall confine ourselves to a review, necessarily very brief and imperfect, of the proof brought forward by Mr. Darwin, and an enquiry into how far it seems to be conclusive.

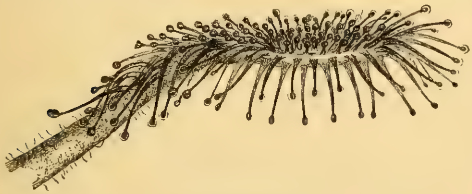


Fig. 1.—Drosera rotundifolia. Old leaf viewed laterally ; enlarged about five times.

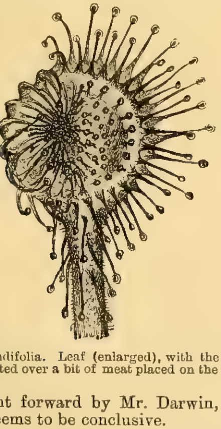


Fig. 2.—Drosera rotundifolia. Leaf (enlarged), with the tentacles on one side inflected over a bit of meat placed on the disk.

The broad proposition maintained by Mr. Darwin is, that certain plants, which he indicates, chiefly belonging to the Droseraceæ or Sundews, are insectivorous. This entails the minor positions, that they catch insects, that they kill them, that they swallow and digest them—that is, absorb their juices, and assimilate them. All this Mr. Darwin maintains that they do. They catch them, some (as Drosophyllum) by the secretion and exudation of a viscid fluid, to which any insects that alight on it adhere in the same way that they do to the sticky gum surrounding the bud of the Horse Chestnut or the corolla of many Cape Heaths, for neither of which is any carnivorous power claimed by Mr. Darwin; others (as the various species of Drosera, especially Drosera rotundifolia) by the use of sensitive appendages on the leaf as shown in fig. 1, which is a side view of the leaf of D. rotundifolia. These have been well named tentacles by Mr. Darwin. Each is tipped with a knob, from which oozes a slimy secretion (from the glittering of which, in the sun, the plant has received the name of Sundew), and each has the power of bending, either independently or conjointly with the rest, covering and detaining by their secretion any small insect that they may have captured. Fig. 2 shows one-half of them so bent over, and the other erect. In a third species, Venus' Fly-trap (Dionæa muscipula) the tentacles are replaced, or, at least, their office is performed by a series of spines along the margin of the leaf, like a *chevaux-de-frise*, which, when the two sides of the leaf close together, interlace, and act as prison bars, preventing anything between the sides escaping. In a fourth plant (Utricularia vulgaris, a water plant common in ditches in some parts of England), the leaves bear bladders, which have an opening closed by a sensitive valve, which opens mysteriously for the admission of insects, but closes firmly against their exit. All the latter contrivances, it will be seen, depend on a power of motion in certain parts, apparently at the will of the plant, but in reality under the stimulus of some existing cause, which induces the required action. This irritability or sensitiveness is no new thing in plants; it is present in many, as, for example, the Sensitive Plant, where it is not thought to be necessarily of beneficial use to its possessor; and, although its existence has been disputed or denied in some of those in which Mr. Darwin has proved it, we do not imagine that anyone would, even before seeing his proofs, have hesitated to concede it to most of his carnivorous species; and he himself does not claim it for all. It is not, therefore, the irritability that is the extraordinary thing; it is the excitation that sets it in motion, and the subsequent action. Almost any kind of interference with the tentacles of Drosera rotundifolia will set it in motion, such as brushing the tentacles, placing inorganic substances upon them, and, most efficient of all, placing organic matters upon them, especially such as contain nitrogen. The rapidity with which this action is induced varies according to the size and nature of the object, the vigour of the leaf, and the temperature of the day; and the time the tentacles take to bend completely over the object is from one to four or five hours; it remains thus folded from one to seven days, and the more soluble the matter is that is dealt with, the longer it remains upon it.

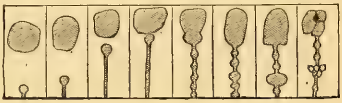


Fig. 3.—Drosera rotundifolia. Diagram of the same cell of a tentacle, showing the various forms successively assumed by the aggregated masses of protoplasm.

The next step in the process (next, although almost simultaneous) is what Mr. Darwin calls the digestion of substances on the leaf. The term digestion, however, has two meanings—one, the chemist's meaning, who, when he speaks of digestion, means little more than solution; the other, the colloquial meaning, which comprehends solution, absorption, and assimilation. Mr. Darwin generally uses it in the technical or chemical sense, although we are not sure that he does not sometimes, perhaps unconsciously, use it in the more comprehensive one. But, at any rate, it seems to us that in the full meaning of this term lies the gist of his proof. His experiments certainly prove solution, and probably absorption; but, although he cites various probabilities in its favour, we cannot lay our hand on any proof, or even attempt at proof, of assimilation. The successive steps in the digestion claimed by Mr. Darwin are: first, a more copious secretion from the glands surrounding the object; next, a change in its quality, from being either exclusively neutral, or only very feebly acid, into an acid which is not hydrochloric acid, but, as near as can be made out, an acetic acid called propionic, and allied to butyric and valerianic; then a fermentative agent, of the nature of pepsin, which Mr. Darwin has been unable to detect, but whose presence he is satisfied of from circumstantial evidence. The reader is aware that something more is needed to digest food in the stomach of animals than the weak hydrochloric acid, which is the principal ingredient in gastric juice; a sort of fermentative agent, named pepsin, has to be added to it to enable it to do its work. The phenomena of the leaf of the Drosera suggest that something similar must be contained in its secretion. Mr. Darwin shows that there is a number of points of resemblance between the active secretion of Drosera and gastric juice, some of which appear of real weight, others open to objection. In the nature of things it must obviously be scarcely possible to detect it chemically, the quantities being so minute; but that is no reason for accepting an unproved conclusion.

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* "Insectivorous Plants." By Charles Darwin. Murray. 1875.

We regret that we have not space to go into the various ingenious reasonings by which Mr. Darwin shows that the presence of something like pepsin is almost certain. We would only make one remark on the subject, applicable both to pepsin in gastric juice and pepsin anywhere else, viz., that it may be an organic product of the chemical action going on between the hydrochloric acid or other acid, and the matter it is dissolving, and not an agent contributed by the living stomach or its substitute at all. It has, we believe, never been obtained but in the half-digested food, nor has its origin been explained. The air and food may first make it, and then use it. We know that there are plenty of instances of the production of organic matters through chemical action. If this be so with pepsin, then its presence both in the animal stomach and on the leaf in Drosera is no more remarkable than that the same result should follow the same chemical action in different places. Practically, this view does not much alter the position of matters. It simplifies the process a little, but leaves the parallelism between gastric juice and the Drosera secretion untouched. That animal matter is dissolved by a living acid, alike by both, is the great point, although a combination of more than one process to effect the result, would, of course, have strengthened the implication that that was the specific result aimed at.

Subject then to any correction which Mr. Darwin's experiments may hereafter receive from subsequent observers, which, from personal verification of a fair portion of them, we can say will not be much, we may assume as proved that insects and other nitrogenous matters caught or placed on the leaves are dissolved. What is done with the solution is the next question. Is it absorbed? Mr. Darwin says that it is. "That the glands possess the power of absorption is shown by their almost instantaneously becoming dark coloured when given a minute quantity of carbonate of ammonia, the change of colour being chiefly or exclusively due to the rapid aggregation of their contents." Of Pinguicula, he says that "the secretion, when containing animal matter in solution, is quickly absorbed, and the glands, which were before limpid and of a greenish colour, become brownish, and contain masses of aggregated granular matter. This matter, from its spontaneous movements, no doubt consists of protoplasm." But there is something in his account of the same phenomenon in Drosera which gives us pause. He there gives two figures of a cell of a tentacle, showing the various forms successively assumed by the aggregated masses of protoplasm, of which fig. 3 is one, and says:—"If a tentacle is examined some hours after the gland has been excited by repeated touches or by inorganic or organic particles placed on it, or by the absorption of certain fluids, it presents a wholly changed appearance. The cells, instead of being filled with homogeneous purple fluid, now contain variously shaped masses of purple matter, suspended in a colourless or almost colourless fluid; and, shortly after the tentacles have re-expanded, the little masses of protoplasm are all re-dissolved, and the purple fluid within the cells becomes as homogeneous and transparent as it was at first." If these phenomena were always and only subsequent to solution, there would certainly be strong grounds for supposing that they belonged to absorption; but the fact that they follow mere mechanical irritation, and are, as shown by Mr. Darwin, independent of secretion, seem to indicate something else, and are, possibly, rather connected with the phenomenon of irritability. But, even although the leaves do absorb, it does not follow that they absorb without distinction; they may be capable of absorbing the water in the solution, and yet not capable of absorbing the nitrogen, or they may be able to absorb both, but the one may be to their benefit and the other to their detriment. It is a remarkable thing that if they are so greedy of nitrogen as Mr. Darwin's theory assumes, and take all these pains to absorb it in the liquid form, they absolutely decline to absorb it in the gaseous form. Though nitrogen gas constitutes by far the greatest part of the mass of the atmosphere, seeds will not germinate in it, neither will plants vegetate. Contradictory experiments are on record, indeed, as to the power of different plants to resist its deleterious effects, but both in those where the plants died and in those where they lived it was found that no use had been made of the nitrogen. Its quantity in all was found to be the same after the experiment as before it, and we are disappointed that in all his experiments Mr. Darwin does not appear to have tried any with this gas, either diluted or mixed. It is true that nitrogen is to be found in almost every part of plants, but the experiments above alluded to show that it must have been derived through the usual medium of obtaining nourishment—the roots.

Last of all, supposing that the liquid is absorbed, is it assimilated? On this, the most vital of all the points of the argument, we have no proof offered at all, for it cannot be called proof to suggest that such an assimilation is required to supplement the deficiency of nourishment, which is to be inferred from the roots being small, and that, therefore, that is how it is disposed of. In the first place, we do not admit that the root apparatus is deficient or disproportionately small. It is small, but so is the plant; and it is semi-aquatic, so that it can more quickly take up its nourishment; and, in the next place, if the provision of roots is deficient, the leaves do not seem the organs which we should expect to be used to supply the deficiency. All the observations of late years point to a reversal of the old theories of circulation of the sap from the root to the leaf, and back again from the leaf to the root. There is, we believe, no such circulation There is simply ascent from the root. There is, no doubt, an anastomosing circulation in the leaves, as there must necessarily be, if the whole of the leaf is to be supplied at all; but, having reached the leaf, the sap goes no farther; it moves about in it, the equilibrium being constantly disturbed by evaporation and fresh flow from the root, until it is deposited or evaporated; and, if this be so, to propose to nourish a plant by absorption through the leaves is pretty nearly equivalent to set about nourishing a man through other channels than those by which he is usually fed. Further, we may observe that the idea of its being possible for a plant to take up nourishment in the way supposed, if true, will militate against the views of Dr. Voelcker and other chemical physiologists, who seem to have come to the conclusion that plants never take up crude food at all, but only such as has first passed through the process of being converted into a mineral salt and then re-dissolved for its food.

Mr. Darwin seems to have a vague idea of some analogy or relation existing between the action of the protoplasm in the cells of the plant and the cells of the lower animals; that as the hydra encircles and feeds on its victims with its arms, so the Drosera does with its tentacles, and he quotes Mr. Sorby's examination of the colouring matter of the leaf of the latter with the spectroscope, who found it to consist of the commonest species of erythrophyll, which is often met with in leaves with low vitality; but we must not allow ourselves to be led astray by fanciful analogies. There ought not to be much difficulty is ascertaining, by practical experiment, whether the teleological reason suggested by Mr. Darwin is the true one or not. Let two plants of Drosera be grown under the same conditions, the one well supplied flies, and the others protected from them, and see which thrives best. According to Mr. Darwin, the non-insectivorous one should be starved, although from the small amount of nourishment that the other could derive from flies during the six months of their existence, at the rate of a meal of two or three midges once or twice a week, we could not, according to our view, credit its *embonpoint* to high nitrogenous living. Of course those who do not accept Mr. Darwin's views must be prepared to be called upon to supply some other explanation of the very curious phenomena under consideration, if they will not adopt his. This was the constant reserve brought up when driven to their entrenchments in the discussion on the origin of species—not, indeed, by Mr. Darwin but by his followers. But the answer is the same now as then. That is not our business; we do not pretend to give an explanation of everything, least of all a teleological one; all that we do is to say whether, in our judgment, those who do have hit upon the true one or not. From what we have said, it will be seen that, in this instance, we think that Mr. Darwin has not, but we are none the less grateful to him for the instruction and information contained in his delightful volume. Mr. Alexander Dumas makes his great hero, the Count of Monte Christo, say that whatever he does he does well. With much better warrant may we say this of Mr. Darwin, and, notwithstanding our different views, of none of his works with more truth than that at present under review. A. M.

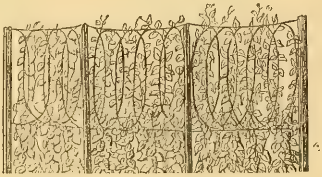
THE KITCHEN GARDEN.

"HIGH-CLASS" KITCHEN GARDENING.*

The author of this book has gained a considerable reputation as a vegetable grower, and, therefore, should be able to teach others how to do that which he does so well himself. A list of vegetables suitable for garden culture is given, as well as the quantities required for cropping given areas of land. In some instances, a thin seeder would, perhaps, consider the quantities named too liberal for high culture—for instance, it is said in reference to dwarf French Beans, that "one quart of seeds will sow a row of 24 yards run." A quart of Canterbury Wonder French Beans will produce considerably over 1,000 plants if the seeds are good—rather a large number to crowd into a row 24 yards long. I have generally obtained a better result from one-third or even one-fourth the number, planted at regular distances apart. The dates given for sowing the different kinds of vegetable seeds are, I presume, intended more especially for the neighbourhood of London than for the Midland counties, and, therefore, some allowance should be made for "latitude," north and south of that point. North of London, the 10th of August—the date given for sowing Cabbages for early spring use, will, on an average of seasons, be found fully late if very early produce is desired. As regards hoeing, manuring, trenching, &c., the instructions given are, in the main, excellent. There may, however, be a difference of opinion as respects his mode of treating light and heavy land, as no man, however large his experience, can lay down rules to suit all places. I have found less difficulty in securing a firm seed-bed upon the light lands of Norfolk—spring worked—than on heavy clays worked at the same season, for the simple reason that pressure has more influence upon land composed of fine particles than when its granules are coarse and angular. In his advice upon draining Mr. Earley says:—"Place the pipes deeply or otherwise, according to the depth of the good upper soil and the constitution of the sub-soil; and, following such considerations, it will be found that they may be placed from 2 feet to a depth of 5 feet." In my opinion, if high culture is aimed at, 2 feet drains are generally useless. Some years ago I drained a kitchen garden where the good upper soil was in no place more than from 15 to 18 inches deep; it had been drained on the shallow principle many years before, but the drains had never acted, as was plainly perceptible whenever an old drain was crossed. As my object was to deepen and improve the soil by gradually bringing up portions of the clay in autumn and early winter, and so give it a long period of exposure; and, by collecting the dry hard clumps in early spring and exposing them to the action of fire, open up another source of fertility. I had no hesitation in placing the drains 4 feet deep, and had only to examine the outfall in rainy seasons, and see the volume of water pouring out, to be convinced of the utility of having the drains at this depth. If a kitchen garden requires draining at all, 4 feet should be the minimum depth, provided always an outfall can be secured. But, apart from all this, Mr. Earley's little volume will be found most useful, especially by the inexperienced; and not the least valuable portions are those relating to "the points of merit in high-class vegetables," as from Mr. Earley's experience, both as exhibitor and judge, he is eminently qualified for the task of drawing up a "standard of merit." I may add, in conclusion, that I consider "high-class kitchen gardening" to be quite as much a question of capital as skill. In too many instances, the over-growth of the ornamental department has injured the kitchen garden. Many a painstaking gardener is now struggling on under such difficulties, hoping either that fashion may take a different direction, or that he may have a more liberal allowance wherewith to work. The title of the work cannot be considered a happy one. E. Hobday.

VOICE'S TRAINING WIRES.

Mr. Voice, of Horley, employs wires for supporting Peas, Scarlet Runner Beans, &c., instead of stakes. Two stumps of wood are driven into the ground at each end of the rows; two wires are then fixed horizontally from one stump to the other, and tightened by Voice's patent screws. The bottom wire should be 10 inches, and the top wire about 4 feet, from the ground. A coil of wire then passed over the two horizontal wires and spread along, allowing one round of the coil to every 12 inches, forms a very neat trellis, to which the Beans cling until they reach the top, when they entwine round each other, and again cling along the top of the wires and form a cluster which protects them against early frosts. Under such circumstances, too, the Beans do not dry up and become old and seedy so soon as they do on sticks or poles. The cost of the wire and stumps is but trifling, and they last for years. J. F.



Wire-trellises a substitute for Pea-stakes.

The Potato Curl.—A plot here of Dalmahoys—a second early variety, an enormous cropper, and one on which I have depended for years—is, apparently, a complete failure this year through the "curl." The haulm exhibits all the distinctive symptoms of the disease at Chiswick, which I have seen before, often enough, but never half so bad as it is this season. I planted in well-worked ground, in rows 3½ feet apart, separating the plants to cover the ground as usual; but, as the crop seems going off altogether, I have just filled up between the rows with Cauliflower. The Ashleafs, Rector of Woodstock, Lapstone, Mona's Pride, and other Kidneys, are a fair crop. Yorkshire Regents are, however, curled in some places, and I see the disease in the cottage gardens here.—J. Simpson, *Wortley, near Sheffield.*

Ne Plus Ultra and George Wilson Peas.—I have these two varieties of Peas in fine condition here just now, and I am of opinion that they are yet unrivalled by any of the newer kinds for productiveness, size of their well filled pods, and flavour. Ne Plus Ultra has one drawback, viz., its tall growth; but where stakes can be found of the requisite length for it there is no Pea more worthy of culture. Fillbasket, one of Mr. Laxton's newer kinds, is a wonderfully productive variety, and must, when better known, be a first-rate market Pea; it is excellent in flavour and size of pods. Dr. Hogg, Supplanter, and Connoisseur, new Peas by the same raiser, have been grown by me this season for the first time, and I find them to be all worthy of cultivation, even in the most select collections of late Peas. Owing to the present wet summer, Peas are remarkable for better filled and larger pods than usual, and they are everything that can be desired for good flavour.—William Tillery, *Welbeck.*

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* "High-class Kitchen Gardening." By William Earley. London: Bradbury, Agnew, & Co.

JUDGES' FEES AT FLOWER SHOWS.

It is time that some protest was made against the small amounts which, in many instances, are paid to those who act as judges at our floral shows. I will state simply, by way of illustration, a case by no means exceptional. No long time ago, I was invited by a large and wealthy company to act as censor at their Rose show, and I accepted the invitation, under the impression that my expenses, at all events, would be paid. I travelled nearer 300 than 200 miles in all, and was compelled to be in London the evening before the show, in order that I might be in time for my judicial duties next day; my outlay was 50s. I received as remuneration—"Reward, requital, recompense, repayment," according to Dr. Johnson—the sum of one guinea. Again, in the case of another Metropolitan company, whose Rose shows are attended by thousands, and are most profitable, the payment to censors is only half-a-guinea more, whatever distance they have come. "You forget," it may be suggested, "the excellent and expensive repast which is provided for the judges." No; I fully appreciate the generous hospitality, and the kind, thoughtful courtesy with which it is administered. I have nothing but thanks and praise to offer to those who rule in practical, but not in financial, matters; but, so far from regarding the dinner as compensation, it seems to me a mistake; and I should be happier, and I know that others of my learned brethren, the judges, would be happier, over their cold lamb, lettuce, and tankards, than when tempted irresistibly, in mid-day, to make themselves feverish and full with hot meats and champagne. It may be answered, we can get what we want at the price we pay; men like the honour of judging, the opportunities of making observations, and they will incur some sacrifice accordingly. But is it generous, is it right, that when prizes are liberal and receipts are great, this meanness should be exercised, and the screw applied to the judges only? Why should they who fill a most responsible and invidious office, be justly dissatisfied when the show is over; to find themselves out of pocket, instead of paid for their work? If it is said, the remedy is in your own power—there is no constraint, you can decline to act if you please—I cordially accept the suggestion; and I call upon those who are invited to officiate as judges, because they have obtained by long study and practical experience a thorough knowledge of that branch of horticulture in which they are asked to make awards, to do the same. I advise them to refuse for the future all summonses to assist at exhibitions where the censors are not adequately paid for their services. At Oundle, little more than a village, in Northamptonshire, the judges fee is £5, at Manchester, £3 3s.; and I do not think that, in any case, where the show is on a large scale and prosperous, a less sum than two guineas, in addition to travelling expenses, should be offered to a competent judge. S. Reynolds Hole.

The Rouen Violet (Viola Rothomagensis) and others.—This is just now in full bloom with me, and is a very pretty and pleasing plant. It belongs to the Tricolor section, and has low-growing creeping stems, from which spring numerous small, long, narrow-petalled purple and white flowers. It much resembles another pretty species which I had some years since, under the name of V. palmænsis, which is, I believe, a native of Sicily. I have also been pleased this spring with another species belonging to the same section, viz., V. gracilis, for which I am indebted to Mr. Green, of Reigate. The North American yellow-flowered V. pubescens and its beautiful congener V. pedata, both flowered well with me this spring, the latter seems to make itself quite at home in a mixture of peat, Cocoa fibre, and leaf mould. V. biflora is growing well in the same bed, and so is V. sororia. I am also much pleased with a pretty variety of V. palmata, which has large deep blue flowers, slashed with white. V. canadensis has been covered with cream-coloured flowers for weeks past, and the pretty little V. (Erpetion) reniformis is just opening out its little blue and white blooms. The latter needs a frame in winter. Can anyone send me V. pedunculata, which I have lost.—H. Harpur Crewe, *Drayton Beauchamp Rectory, Tring.*

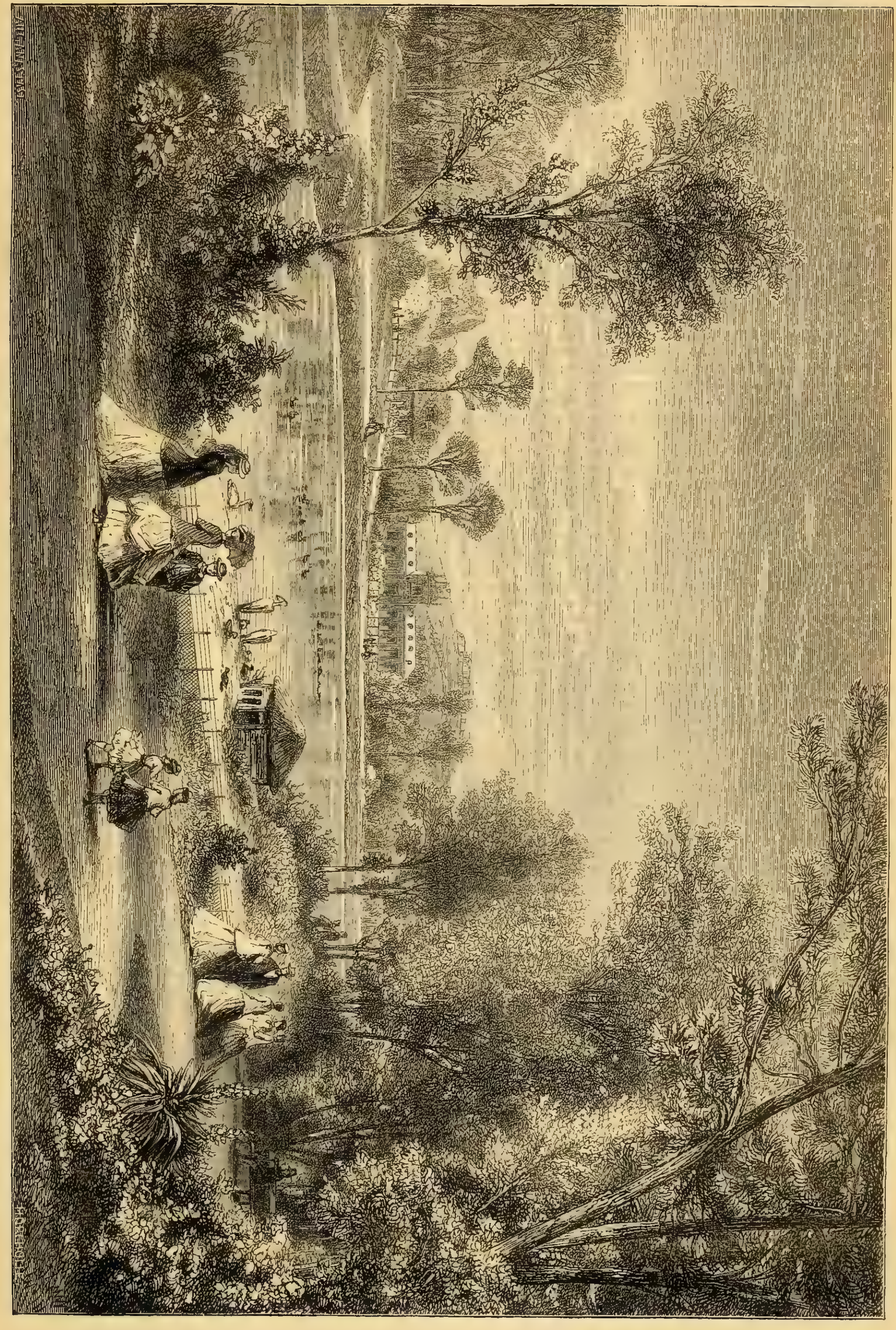
Herbaceous Spiræas.—Many of the herbaceous Spiræas are fine ornaments to the garden; notably, S. Aruncus, growing to the height of 5 feet, with white flowers in long panicled spikes, whence its common name of Goat's-beard. The double form of S. Filipendula is a pretty plant. S. venusta, with deep rose-coloured flowers, grows to about 3 feet, and is very handsome. S. palmata, with crimson panicles of bloom, seems to require more attention. I cannot grow it satisfactorily. Astilbe rivularis, with yellowish flowers, from Nepal, and the more uncommon A. rubra, from Japan, with rose-coloured flowers, should be grown with the Spiræas, to which they are related. Both species grow tall, from 4 to 6 feet, and all require good loamy soil, and, if rather moist, so much the better.—Oxon.

THE ADVANTAGES OF COMBINING ZOOLOGICAL AND BOTANICAL GARDENS.

Nowadays, other gardens than those avowedly botanical or horticultural, often claim attention from their gardening interest. In our own Zoological Gardens, there has, for some years past, been attractive floral displays both in spring and summer. The warm temperature and abundant light of the new monkey-house afforded opportunities for indoor gardening which were taken good advantage of. This desirable innovation might be carried out with advantage in many other cases. The temperature, moisture, air, &c., given to houses of exotic plants of various classes would perfectly suit various forms of animal life difficult to preserve in good health in cold northern countries. The interest and beauty of both the animal and vegetable kingdom might be heightened by such a mixed arrangement as we speak of, if tastefully and judiciously carried out. The economy resulting from adapting the same structures and heating power to the wants of both the animal and vegetable treasures would permit of fuller justice being done to each. In cities rich enough to afford first class separate establishments, this proposal in its entirety would not so readily commend itself. But, however objectionable it might seem to introduce zoological elements into the botanic garden, there would be no two opinions as to the good of adding all the charms of vegetation to the zoological and every other type of garden. In small cities, only able to afford one establishment, it would be easy so to arrange the two matters that a happy result might be produced. If these ideas be sound so far as buildings are concerned, they are equally so as regards the open air. The old narrow idea that a small portion of ground in a town suffices to worthily represent vegetation in a public garden—the idea that we see illustrated in so many continental cities, and in some dozen of our own—must be got rid of before we ever see ornamental horticulture properly carried out in any city. Every garden and open space may do as much towards this end as any similar space of the so-called Botanic Garden. That it should do so two things mainly are requisite — first, that the garden should be laid out on a sensible plan; secondly, that it should not be devoted to imitating, feebly or strongly as the case may be, what is done everywhere else. Beautiful it might be made with every flower or tree that those who resorted to it loved; but, in addition, let it show us one or more families of trees, shrubs, plants, or fruits, as completely illustrated as may be possible. It should, in fact, like a useful type of man, know a little of everything and *everything of some thing.* We shall never know what public gardens may do for horticulture till some clear-headed man has power to so arrange the gardens and numerous open spaces of a city, as distinct and separate parts of one great garden, all beautiful, but no two of the same pattern. Among modern public gardens, that of the Acclimatisation Society in the Bois de Boulogne shows a fair attempt to make a garden, mainly zoological, satisfactory from a landscape point of view, and beautiful through judicious planting of a great variety of trees, shrubs, and flowers. V.

Effect of Electricity on Plants.—The effects of electricity on plants have not been closely studied. It is known to produce contractions in Sensitive Plants, and to retard the motion of sap. M. Becquerel has studied its influence on germination and development. It decomposes the salts contained in the seed, the acid elements being carried to the positive pole, and the alkaline portions to the negative. Now, the former are hurtful to vegetation, while the latter favour it. M. Becquerel further examined the influence of electricity on the colour of plants. The discharge from a powerful machine produced remarkable changes of colour on the petals, due, he thinks, to the rupture of cells containing colouring matter.

Conservation of our Water Supply.—Mr. Bailey Denton writes:—"During the last month there has fallen on the surface of the country, with but few places excepted, within the short period of one hour, as much rain as would, if conserved, supply the entire population with water for domestic and other purposes for a whole year; there has fallen within the present year (1875) sufficient rain 'per square yard of surface' to furnish 50 per cent. more water than would satisfy each unit of the population for drinking purposes. Ought an enquiry into the capability of utilising such excesses, and so equalising extremes, to be delayed, when it is well-known that, even at this moment, while in the midst of the deluges of rain that have occurred, there are places where an insufficient provision of water exists?"



VIEW IN THE ACCLIMATISATION SOCIETY'S GARDEN, BOIS DE BOULOGNE.

TREES AND SHRUBS.

THE WOODLAND GARDEN.

Beautiful as the woodlands are in spring, little has been done, in most places, to take advantage of the numberless hardy flowering trees and shrubs that Nature has placed at our disposal, and that would, if planted, tend to enhance the beauty of many an estate. Acres of Primroses and Wood Violets, so densely flowered as to form continuous beds, are frequently met with; while, in moist situations, the wild Hyacinth, the Marsh Marigold, and Silenes, form beautiful combinations, and are succeeded by other and equally-effective native displays, whilst golden Daffodils are naturalised in great abundance in more open situations and meadow-lands. But when we come to examine the vegetation of a more arborescent character, the result is by no means so satisfactory. Fettered by old-fashioned customs, the usual intermixture of soft-wood, hard-wood, and under-wood, is adhered to, and for no other reason apparently than that flowering and fine-foliaged trees have always been considered the rightful tenants of highly dressed grounds. I have tried the following hardy plants, and found that they succeed quite as well as the ordinary kinds grown in the woodlands of this country; and almost every individual taste may be gratified, for the number of suitable subjects is almost endless. The Laburnum, when seen against sombre Pines, makes a splendid display. It is easily raised from seed, and is rapid in growth. The Syringas, including Lilacs, Guelder Roses, Bird Cherries, Crabs, Almonds, and variously-coloured Thorns, are all equally valuable for lighting up our woodlands; while, among foliage plants, variegated Maples, Sycamores, Oaks, and Copper Beeches, are always effective. Among drooping trees, too, are some useful kinds for woodland embellishment, such as the gracefully-drooping Silver Birch, the Weeping Ash, Elm, and Beech, all of which look well, especially when planted on the edge of sharp inclines or embankments. Plants of more humble growth suitable for margins are almost endless, and are much more effective if planted in masses than in a mixed border. For instance, if irregular recesses are planted with Rhododendrons, Berberries, Heaths, Broom, St. John's Wort, Furze, Periwinkle, and Cotoneasters—all as hardy as the plants usually employed, and equally useful as cover for game—a rich harvest of bloom would be secured. I need scarcely allude to the many suitable situations for such displays that exist on all sides, as all who travel either by road or rail can testify. Are we to wait for Nature to clothe the ground with Thistles and Docks, or take the more rational course of planting it with really hardy and effective trees, and of scattering over it seeds of hardy flowers, such as Foxgloves, Myosotis, and Primroses? If we do our part Nature is sure to do hers. We may already congratulate ourselves on the improvement observable in the appearance of the parks and gardens of London and other great towns, but let it not stop there; on the contrary, let it extend to the highways and hedge-rows of the most remote parishes, where such specimens of forestry may be seen that would disgrace even an uncivilised country. The specimens of timber trees left in some districts resemble convicts in felons' attire. Shorn of their native beauty, they are indeed pitiable objects to behold, forming, as it were, "monuments" of what may be called the "dark ages" of forestry. Even on the score of profit, owners would often do well to plant ornamental trees, as the wood of many of them is equal, if not superior to that of those useless "cumberers of the soil," of which we now see so many in all directions. They are rarely worth the expense of felling, for the pruning which they receive in the earlier stages of their growth is done in so unskilful a manner that the majority of them become decayed before they arrive at a stage to be considered "timber" trees.

J. Groom.

Henham, Suffolk.

THE VIRGILIA AS A LAWN TREE.

A noble specimen of the Virgilia upon my lawn, planted some twelve years ago and now in bloom, reminds me that this beautiful denizen of our forests is still quite rare, even in grounds where ornamental trees are a speciality. It is true that our nurserymen have kept this tree for sale, and an occasional specimen may be found planted in private grounds, where they are, as a rule, crowded in among other trees and shrubs which prevent full development and an unfolding of their natural beauties in form, foliage, and flowers. When planted singly with an abundance of room for development, the Virgilia is one of the most graceful of our native trees. It forms a broad head, somewhat of a wine-glass shape, with the ends of the young branches slightly drooping in summer, but becoming erect as the wood ripens in autumn. The wood is of a light yellowish colour, hence one of its common names—Yellow Wood. The bark is smooth, resembling in this respect the Beech, not cracking open or becoming corrugated, like the Elm or Chestnut, as the trees attain age. The leaves are composed of from seven to eleven broad, oval leaflets, from 3 to 4 inches long, and of a bright, glossy, green colour. The flowers are small and creamy-white, delicately fragrant and borne in a long, pendent panicle. The habit of this tree is really all that one could desire for a lawn or other ornamental purpose. The foliage is abundant, appearing quite early in spring and holding on until frost, at which time every leaf drops, and I have known specimens to be defoliated in two hours' time, during a clear morning following a frosty night. As soon as the leaves are all off, they may be raked up and removed, and there will be no more litter from this source. But with many of the Oak, Chestnut, and similar trees planted on lawns, one must be continually at work for weeks during autumn raking up leaves if anything like neatness is to be secured. The Virgilia is readily grown from seeds, which somewhat resemble those of the common Locust, but are slightly larger. The seedlings are of rather slow growth for the first few years, but soon become vigorous and shoot up rapidly; 2 to 3 feet in a season is not an unusual growth. This tree, according to "Moore's Rural," is found most abundant in the forests of Eastern Kentucky and from thence further south.

TREES AND SHRUBS THAT MAY BE BUDDED NOW.

We are now in the midst of the budding season, and we ("Moniteur Horticole Belge") embrace the opportunity of giving a list, almost complete, as we hope, of all the trees and shrubs, grown for fruit or ornament, which may be advantageously propagated in this manner.

Fruit Trees.—The Apricot may be budded upon the Myrobolan, and other Plums; the Almond upon seedling Almonds, when the trees are intended to be planted in a deep and dry soil; and upon the Myrobolan Plum and upon seedlings when they are to be planted in shallow or sandy soil; the Cherry upon the wild kinds, if large trees are required; and upon Sainte-Lucie (Mahaleb) when they are not required of any great size. Chestnuts of different kinds may be budded, but the results are not invariably to be depended upon; generally what is termed flute-grafting is to be preferred to budding and inarching upon the common Chestnut. The Portugal Quince—This is usually multiplied by means of cuttings, but it may also be budded upon the Angers Quince; the Large-fruited Medlar may be budded upon the common Medlar; the Peach upon seedling Plums and on the Almond. In Belgium the Plum is usually preferred as a stock for the Peach. The Pear may be budded upon seedling Pears and upon the Quince. The Apple upon seedling Apples and the Doucin and Paradise stock, according as large, medium-sized, or small trees are required. The Plum upon seedling Plums or upon Myrobolan.

Ornamental Trees and Shrubs.—Rhamnus alaternus may be budded upon seedling Buckthorns, Hibiscus syriacus upon the common Althæa, Amorpha fruticosa upon stocks of the same variety, Colutea arborescens upon the common Bladder-nut tree, Broussonetia papyrifera upon the common Broussonetia, the Pyracantha upon the Hawthorn, Chionanthus virginica upon the common Ash, Pyrus japonica upon the common Quince, Cornus mascula upon seedlings of itself, C. sibirica foliis variegatis upon the white-fruited Cornelian Cherry, the Laburnum upon stocks of itself, Cratægus Oxyacantha upon any kinds of Hawthorn, Acer campestre upon common Maples, but in this case it is best to propagate by inarching; A. platanoides upon stocks of the Plane tree, A. pseudo-platanus upon the Sycamore, A. Negundo upon the Ash-leaved Maple, Fraxinus excelsior upon the common Ash, Euonymus europæus upon the common Spindle tree, Ilex aquifolium upon the common Holly stocks, Syringa vulgaris upon the common or white-flowered Lilacs, the Horse Chestnut upon stocks of itself, the white Mulberry upon seedlings of the same tree, Mespilus upon the Hawthorn, Ulmus pedunculata upon the common Elm, Pavias upon the Horse Chestnut, double-flowering Plums upon seedlings or upon the Myrobolan Plum, Diospyros Lotus upon the Ebony tree, the Willow-leaved and variegated-leaved kinds of Pyrus upon seedling Pears, Prunus spinosa upon seedling Plums or the Myrobolan, double-flowered and variegated-leaved Apples upon common seedling Apples, the variegated-leaved variety of Cerasus Mahaleb upon Saint Lucie, the weeping Sophora japonica upon seedlings of the same tree, Sorbus aucuparia and S. americana upon the Hawthorn, Tilia argentea, T. tomentosa, and T. americana upon Tilia platyphylla, and the latter upon stocks of itself. It may be observed here that in the case of Lime trees, budding with a pushing eye is more likely to be successful than when effected with a dormant one. The common Privet does well budded on stocks of itself, as does also the Chinese kind upon the stocks of that Privet, and the variegated-leaved variety of Ligustrum ovalifolium upon the Californian Privet, this kind may also be increased by means of cuttings; the different varieties of Guelder Rose do well upon Viburnum lantana, but they are better increased by layering than by budding.

Prices of Timber.—Some of your readers may be interested in knowing the present value of timber. The following are, as near as I can state, the prices obtainable for the different species of timber on this estate. I may mention that we are from 4 to 5 miles from a railway station, and a considerable distance from any large manufacturing town. There is a great demand for Beech and Scotch Fir, the former has been nearly trebled, and the latter doubled in price within seven years. Ash and Oak are also in good demand, at advanced prices. The former is becoming scarce in the country, and as no other sort of timber can be used as a substitute by coach-builders, implement makers, and wheelwrights, Ash is sure to command even higher prices than at present; consequently, it ought to be planted extensively. Lime is also a valuable timber tree, and should not be lost sight of by those who are making plantations where the soil and situation is favourable to its growth. Oak, first quality, 50 feet and upwards, 3s. to 4s. per foot; second, 20 to 50 feet, 2s. to 3s.; third, up to 20 feet, 1s to 2s. Ash, first quality, 20 feet and upwards, 2s. to 3s. 6d.; second, under 20 feet, 1s. 6d. to 2s. Elm, first quality, 50 feet and upwards, 1s. to 1s. 6d.; second, under 50 feet, 9d. to 1s. Beech, first quality, 20 feet and upwards, 1s. to 1s. 6d.; second, under 20 feet, 9d. to 1s. Lime, first quality, 20 feet and upwards, 2s. 6d. to 3s. 6d.; second, under 20 feet, 1s. 6d. to 2s. 6d. Larch, 1s. to 1s. 3d. Scotch and Spruce Firs, 10d. to 1s.—George Berry, *Longleat, Wilts.*

Forests and Floods.—In order to form an idea of the causes of the inundation in France, it is only necessary to glance at the physical geography of the departments in which it has occurred. They lie on the northern slopes of the Pyrenees, and are intersected by numerous and rapid rivers, of which at least four unite to form the Garonne before it reaches Toulouse. There had been heavy and continuous rain over the whole of the mountain range, and a fall of snow at Luz, where it would directly swell the head-waters of the Garonne. It is said that at least a contributory cause is furnished by the great destruction of timber in the district during the last century. Trees not only absorb water largely from the soil, but they also prevent the surface from being baked and hardened by the sun, and they check the rapidity and abruptness with which rain would otherwise reach the ground. When it falls unimpeded upon dry and barren hillsides, it will run from them almost as freely as from the sloping roofs of houses, and a few hours will carry the water of the mountain storm to swell the volume of the nearest river.

NOTES AND QUESTIONS ON TREES AND SHRUBS.

Golden-leaved Magnolia.—I have sent you a leaf of my variegated Magnolia acuminata, a magnificent tree, some of the leaves of which are nearly all yellow.—C. M. Hovey, *Boston, Mass.* [The leaf in question, though faded, was still handsome; it was yellow, slightly streaked and mottled with green.]

The Winfarthing Oak.—Mr. Amyot contributes an account of this ancient Oak to the "Transactions of the Norfolk and Norwich Naturalist's Society." Its present girth is 40 feet about the middle of the trunk; in 1744 it was 38 feet 7 inches.

Magnolia Halleana.—This appears to be of the same class as M. conspicua, but the flower is composed of about twenty narrow strap-shaped petals; on the whole rather smaller than those of M. conspicua—white and very sweet. A little more, says the "Gardeners' Monthly," and we shall have a double Magnolia.

Double-flowered Deutzia crenata.—This is one of the best border and shrubbery plants grown when it gets large and in good health. It will last a long time in flower, and seen from a distance the pale rosy tint of its flowers renders them very effective. As it is not so early in bloom as many other spring shrubs, when planted judiciously in large shrubberies it lengthens the flower season. It is good for cut flowers.—A. H., *Thoresby.*

—— The beauty and usefulness of the flowers of this Deutzia, both at this season and when forced, ought to make it more common than it is. I propagated a quantity of it and planted them out some years ago in the shrubberies and borders here, and have had every year a splendid diplay of white flowers. Even under the shade of trees it grows and blooms as finely as in the full sunshine. Anyone having to supply quantities of white flowers for purposes of decoration will find this Deutzia of great value.—J. A., *Hill Grove.*

THE INDOOR GARDEN.

PLANT HOUSES.

These are of two classes—wood and iron. A diversity of opinion exists about the merits of iron structures. There can be no doubt, however, that wooden houses are the best for plants; but the greatest elegance of design and lightness can be secured by using iron. When the house is large, and contains a great bulk of air, the evils resulting from the use of iron rafters and framing are less felt, though such houses always require most fuel; but small houses of iron are decidedly objectionable, if only on account of the excessive radiation and condensation which goes on in them during cold weather, when fire-heat has to be used, always with the worst effects to plant life. We have an iron greenhouse which falls to within 2° of the out-door temperature if left without a fire at night; consequently, it is never safe to have the fire out during winter, and the aridity arising from condensation, which is produced when there are a few degrees of frost, is destructive to such things as Heaths, Cinerarias, Calceolarias, &c.—so much so that in severe weather it has to be emptied of everything for the time. During summer weather, when no fire-heat is necessary, the house suits plants well enough. For all propagating and nursing houses for plants, or indeed any structure in which design can be carried out in wood, iron should be dispensed with as an evil. Plant houses for general purposes should, when practicable, be made on the span-roofed principle, whether angular, curvilinear, or dome-shaped. No other kind of structure is so well adapted for plants throughout the season; the span admits the most light, is the most economical as regards space, and can be efficiently ventilated. But such houses should always run north and south; placed the contrary way they are worse than a lean-to in winter, for the north side never gets the sun. For forcing purposes, however, the lean-to is by far the best for winter work. All propagating-houses, or houses for pushing on growth at the dull season, are best made of this form facing south. We are speaking of cases when the situation can be chosen; but sometimes people like to utilise a vacant west or east wall by covering it with glass, and, of course, must conform to circumstances. Most kinds of greenhouse or stove plants will thrive in such exposures; but the houses should be light—no more wood used than can be helped—and they should be efficiently heated; for in winter and spring, when the plants are potted and have to be started into growth, they get little sun, and want artificial aid. For cheapness of construction and economy in fuel, plant houses, whether span or lean-to, are often sunk partially in the ground, the pathways being considerably below the ground level. Such houses are undoubtedly much more easily heated, and are well adapted for such plants as Cinerarias, Calceolarias, and many others that do not like fire heat in winter; but, owing to their dampness, Heaths, Pelargoniums, Epacrises, Primulas, &c., do not thrive so well in them. Heaths take mildew, Pelargoniums the spot, and Primulas damp at the collar. Sunk houses or pits are economical structures for wintering bedding stuff, half-hardy plants, &c.; but for plant growing, in a proper sense, it is preferable to have the floor of the house above the ground line, or on a level with it, to ensure a free circulation of air throughout. A very good way of compromising the matter, however, in building plant-growing span-roofed houses of moderate height, is to tie them together in a ridge-and-furrow block, instead of having each house isolated, and consequently presenting a much greater cooling surface to the air. Nurserymen are adopting this plan now with houses for pot Vines, and general nursery stock, and no better kinds of structure could be devised for private grrdens. When there is not much disparity in the temperature of the different houses, there is no necessity for internal divisions, only piers at certain distances to support the furrows, and each coil of pipes helps to heat the two houses; but, when it is necessary to have a division, a brick on edge from the floor to the furrow bottom is enough. Of course, all the ventilation is at the top in such structures, except at the outermost house; but it is ample for such houses. The economy effected in the construction and heating of such a block is obvious; greater advantages are gained in this way than would be by having the houses partially sunk in the ground, and we get rid of the dampness. A common fault of small plant-houses is blind sides and ventilators. No economy whatever is effected by carrying the bricks up to the eaves of the roof; glass is just as cheap, looks better, and is better. Thick walls should never be carried higher in any house than the plant shelves, in order that the inmates may have all the light possible. The internal fittings of plant-houses are a matter of some consequence—the shelving, for instance. Wooden shelves and stagings are most common, being generally constructed of spars nailed an inch or less apart, and resting on a tressel framework. Such shelves are good enough in winter, as they do not retain damp, but the advantage over stone or slate shelves in this way is hardly appreciable, and the latter are far the best in summer. A plant in a pot is not favourably placed at any time on a dry airy shelf, and in summer weather greenhouses and conservatories are gusty places, and are not kept in a proper state of humidity without much attention. It is, therefore, necessary that the pots should rest at such times on a cool moist bottom. Experience has proved this to be highly advantageous. Nurserymen, who generally discover what is best, cover their wooden shelves or framework made for the purpose with Welsh slates, and put over these about an inch of sand—a first-rate plan. The sand is generally moist, and it is found the plants require considerably less water, which is labour saved. Stone shelves are the next best to sand, and afford space to spill water in dry days, which keeps down heat and drought by evaporation. Iron grating shelves are the worst of all, and if they are placed above the hot-water pipes, the conditions are about as unfavourable to plants in pots as could be devised. One of our houses is fitted up in this manner—from the designs of a horticultural builder, we suppose. Were we not to resort to the sand plan, or lay thick brown paper under the pots in cold weather, the plants would be ruined. It is a bad plan to have the pipes too near the shelves at any time, as currents of hot air are always injurious to plants in pots. J. S. W.

Cool Orchids.—Now is the time to keep these cool. Anything in the shape of oppressive heat, during the months of July and August particularly, will do more harm than indifferent treatment for the other ten months of the year. Our climate in summer is, if anything, too hot for such Alpine Orchids as Odontoglossum Alexandræ, Pescatorei, and triumphans, and similar kinds; consequently abundance of moisture, particularly in the atmosphere, must at this time prevail. To keep down the temperature, shading must be resorted to, and it will add much to the coolness of the house if the shading be raised 2 feet from the glass, in order that a current of air may intervene between the two. Attention to this will prove highly beneficial to the plants, which, thus treated, will distend their pseudo-bulbs to a great size; other conditions being favourable. The leaves will become broad and dark in colour, and will stand up instead of falling down by their own weight, as is too often the case. If the atmosphere be properly supplied with moisture there will not be much necessity for giving great doses of water at the roots. I find a layer of Sphagnum an excellent bed, in which to plunge the pots half-way down. It keeps them moist and looks well, as it grows into a cushion of emerald velvet, encouraged to growth by the constant supply of moisture.—James Anderson, *Meadow Bank, Uddingstone, Glasgow.*

A fine Stove Climber (Petræa volubilis).—The Petræa volubilis is a plant introduced more than a century ago, but of whose existence we venture to think few of our plant growers are aware, and of whose beauty fewer still have any idea. For profusion of bloom, grace, and exquisite delicacy of colour, it is, perhaps, without a rival. It is a twining stove shrub, with leaves not unlike those of some of the Bougainvilleas, but larger. The flowers are borne in marvellous profusion in elongated light airy racemes. The calyx is divided into five narrow, strap-shaped segments, of a very delicate pale bluish-mauve, about twice the length of the segments of the corolla, which is of a purplish-blue, forming a pretty contrast with the pale tint of the spreading segments of the calyx. In the flowers of Petræa we have a colour unique among stove climbers, and one very desirable, as regards variety, to see on the exhibition stage, where this plant would tell with fine effect, if in the same style as we see Clerodendron Balfouri, Stephanotis, Rhynchospermum, Allamandas, and other exhibition favourites. It forms a beautiful object trained to the roof or back wall of the stove, the elegant pendent racemes hanging in profusion. It will grow freely in a compost of good, light, fibrous loam, to which a little sandy peat is added. Cuttings root freely in sand plunged in heat, and covered with a bell-glass. When growing it likes a moist heat and must be watered freely, but when at rest it should be kept rather dry than otherwise. Good drainage is also essential. There are one or two other species almost, if not quite, as pretty as that at present under notice; all are natives of Vera Cruz. The generic name was given in honour of Robert James, Lord Petre, who died in 1742, and of whom the celebrated Collinson, writing to Linnæus, speaks as being one of the "greatest losses botany or gardening ever felt in this island." At Glasnevin, Petræa volubilis is trained to the roof of the large greenhouse, which, when in flower, is more admired perhaps than anything else in the same department.—"Irish Farmers' Gazette."

MY GARDEN IN SUMMER.

Bounded by the budding Clover,
And sentineled with trees,
Showered with wealthy sun all over,
The home of birds and bees;
It has only clouds to love it,
The winds to be its friends,
Moon and sun to watch above it,
And stars that evening lends;
Kindly morns to wake its flowers,
Still noons to give it gold,
Patron twilight, sunset dowers,
And dews when days are old.

Purple Phlox and Sunflowers trusty
Guard all its rich estates,
Dahlias, broad and lusty,
Like peasants, crowd its gates.
Violets bloom in corners shady,
And on the borders gay
Sits the Stock, a crimson lady,
And Pinks have holiday.
Larkspurs leaning out in places
Where bashful Myrtles creep,
Laugh at Monk-flowers' hooded faces,
And Poppies gone to sleep.

There are starched and stately Briars,
And Thistle-knights and dames;
Bloomless weeds, like jovial friars,
Grasses with ancient names.
Vagrant Hops that court the Clovers,
Prim Lilacs, in a row,
Gaudy Beans grown willful rovers,
Grand Hollyhocks for show,
Quaint, bright Pansies, Foxgloves stately,
Lilies with petals wide,
Jasmine tinted delicately,
And Daisies merry-eyed.

I am queen and lady in it—
Queen over leaf and flower—
Crowned with sprays of purple Spinnet,
I own no higher power,
Teems the world with fears and sorrows,
For me, I have no care!
My good realm excludes to-morrows,
And all I want is there.
Where such gold as sunset treasures,
Or truer friends than flowers?
Such dear dreams, such happy leisures,
And such enchanted hours?

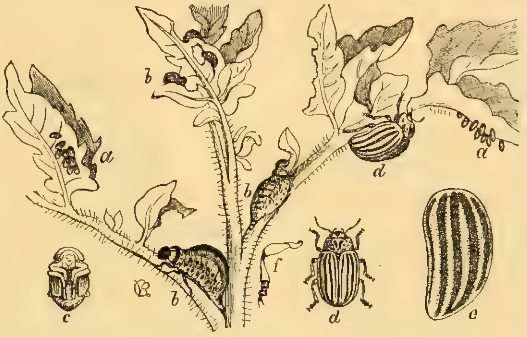
When my life and I are tired
Calling ourselves by name,
When the things we have desired
No longer seem the same;
When the years have weary faces,
And heaven is near and fair,
I shall seek its broader spaces,
And find a garden there. Anon.

A Valuable Aid.—In this year's report from the Commissioners of Public Works in Ireland special mention is made of various drainage and other works. On the estate of Mr. Philip Doyne, in county Donegal, owing to the number and size of the boulders scattered over and in the soil, all efforts to operate on it were in vain until dynamite was used, and then the success was marvellous. The inspector, Mr. E. Murphy, says:—"It is perfectly wonderful what execution 2 oz. of dynamite put into a 6-inch hole in a large sunk boulder can do. For surface boulders a couple of charges placed on the top of the stone and covered or weighted by another boulder will break both up, the only difficulty (as Mr. Doyne remarked) being 'that you cannot find the pieces.' Mr. Doyne has also used dynamite in the removal of old roots of trees, and it splits them up into firewood."

THE COLORADO POTATO-BEETLE.

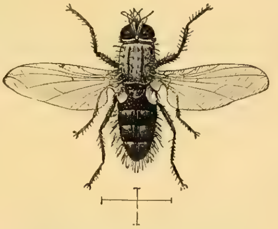
(Doryphora 10-lineata.)

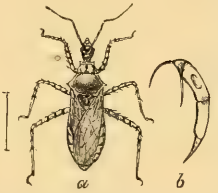
Professor Riley, the State entomologist of Missouri, having, when in London the other day, informed us that the climate of this country is not only suitable for this beetle, but that its introduction is quite possible, we expressed a desire that he should write a full and complete account of it for The Garden, a request with which he has kindly complied, as follows:



Colorado Potato-beetle: *a*, *a*, eggs; *b*, *b*, *b*, larvæ of different sizes; *c*, pupa; *d*, *d*, beetle; *e*, left wing-cover magnified to show lines and punctures; *f*, leg, enlarged. Colours of egg, orange; of larva, Venetian-red; of beetle, black and yellow.

Few insects have done more serious injury, or attracted greater attention, than this, even in America, where insect depredations attain a magnitude scarcely dreamed of in this country. Feeding originally on the wild Solanum rostratum in the Rocky Mountain regions of Colorado and other territories, it fell upon the cultivated Potato as soon as civilised man began to grow this esculent within its reach. With large fields of palatable food, instead of scattered plants of the wild Solanum, to work upon, it multiplied at a marvellous rate, and began to spread from its native home towards the east. Reaching a point 100 miles west of Omaha, Nebraska, in 1859, its progress has been carefully recorded each year since, until last year it reached the Atlantic coast at a number of different points in Connecticut, New Jersey, New York, Pennsylvania, Delaware, Maryland, and Virginia. The present year we hear of it being still more numerous on the Atlantic coast, and of its swarming around New York city, and covering the nets of fishermen. It has thus, in sixteen years, spread over 360 geographical miles, in a direct line; and, if we consider the territory actually invaded, which includes the States of Kansas, Nebraska, Missouri, Iowa, Minnesota, Wisconsin, Illinois, Indiana, Kentucky, Michigan, Ohio, Ontario (Canada), New York, Vermont, Massachusetts, Pennsylvania, Maryland, and Virginia, it has overrun an area of 50,000 square miles. The natural history of the species was first made known by me in 1863. The beetle hybernates either beneath the ground or beneath any other shelter that it can obtain. Early in spring it issues from its winter quarters, and may be seen flying about, on sunny days, long before there are any Potato tops for it to devour. In flight it presents a very pretty appearance, its gauzy rose-coloured under-wings contrasting agreeably with the striped yellow and black elytra or wing-covers. The sexes pair, and, as soon as the Potato haulms push out of the ground these beetles break their long winter fast, sometimes even working their way down towards the sprout before it is fairly out of the earth. The eggs, which are orange-yellow, are laid in small clusters on the undersides of the leaves, and the same female continues to thus lay at short intervals for a period of over forty days, until the number laid by a single specimen may aggregate from 500 to over 1,000. There are, in the latitude of St. Louis, three broods each year; but, from the fact that a single female continues to deposit as above described, and from the irregularity of larval development, the insect may be found in all stages throughout the summer months. In from thirty to forty days from the time the egg is deposited, the insect hatching from it goes through all its transformations and becomes a beetle, the pupa state being assumed under ground. The prolificacy of the species may be imagined when it is remembered that the progeny of a single female may exceed a hundred millions in the course of a single season. The beetle feeds as well as the larva, though not so voraciously. Its attacks are principally confined to plants of the family Solanaceæ, and it is particularly fond of those belonging to the genus Solanum. Yet I have recorded many instances of its acquiring new habits in its march to the Atlantic, and of its feeding, when hard pushed, on plants of other families. There are various means of destroying the insect, and in the earlier invaded territory of the States, though it continues its ravages, thereby making the cultivation of Potatoes more laborious, and increasing their market price, yet it is no longer dreaded as it at first was, for the reason that it is controlled with comparative ease. The natural enemies of the species are encouraged by the intelligent cultivator, and poultry may be taught to feed upon it. Of over two score predacious and parasitic species of its own class which I have enumerated, those herewith figured may be considered the most important. The only true parasite is a species of Tachina-fly (Lydella doryphoræ *Riley*), somewhat resembling a house-fly, which fastens its eggs to the Doryphora larva. From these eggs hatch maggots which feed upon the fatty portions of the said larva, which, after entering the ground, succumbs to its enemy, and, instead of eventually giving forth a beetle, as it naturally should do, gives forth, instead, the Tachina flies. A number of different lady-birds (Coccinellidæ), of which the Convergent lady-bird is the most common, devour the eggs of the Doryphora. Of true bugs the Spined Soldier-bug (Arma spinosa, *Dallas*) is the most effective, though several other rapacious species assist it, all of them piercing and sucking out the juices of their prey. Of artificial remedies there are various mechanical contrivances for knocking the insects off the haulm and catching them — some such even being worked by horse-power. The sun is, also, so hot in some of the Mississipi Valley States that the larvæ are roasted to death if shaken from the haulm on to the hot soil at mid-day. The remedy of all others, however, and the one universally employed, is Paris green, which is used either in the form of a powder, or in that of a liquid, being combined in the former case with from twenty-five to thirty parts of some dilutent, as flour middlings, plaster, &c., and in the latter with one tablespoonful of pure green stirred into an ordinary bucketful, or about 3 gallons, of water. Enormous quantities of the poison have thus been used in America, especially since it has proved a perfect remedy for the Cotton-worm in the Southern States, as well as for the Potato-beetle in question. Cautiously and judiciously used it proves cheap and effective, and a large experience goes to show that no ill effects follow such use of it.

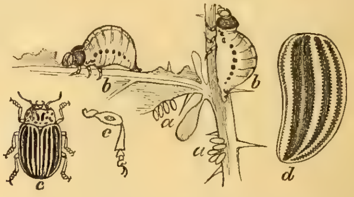

Lydella doryphoræ: parasite of Doryphora. Colours, siver-grey and black.



Many-banded Robber: with beak enlarged at side *(b)*. Colours, pale yellow and black. Preys on Doryphora.

There is a very closely allied species, the Doryphora juncta of Germar, called the Bogus Colorado Potato beetle, which, very naturally, has often been confounded with, and mistaken for, the genuine depredator. It differs, however, in the eggs being paler; in the larva being paler, and in having but one row of black dots on each side instead of two; and in the beetle having the second and third black lines of the elytra (counting from the outside) joined, instead of the third and fourth; in the punctures of said elytra being more regular and distinct, and in the legs having pale instead of dark tarsi, and a spot on the thighs. Singularly enough, this species, though it feeds and thrives on Solanum carolinense, will not touch the cultivated Potato, and is, therefore, perfectly harmless to man.

The English reader is more particularly interested in this insect, because of its possible introduction into Europe; and on the subject of its introduction I cannot do better than quote some passages from my seventh report:—"Those who have watched the gradual spread of this Potato-beetle during the past seventeen or eighteen years, from its native Rocky Mountain home to the Atlantic, and who have seen how lakes, instead of hindering its march into Canada, really accelerated that march, can have no doubt that there is danger of its being carried to Europe. Yet I must repeat the opinion expressed a year ago—and which has been very generally coincided in by all who have any familiarity with the insect's economy—that if it ever gets to Europe it will most likely be carried there in the perfect beetle state on some vessel plying between the two continents. While the beetle, especially in the non-growing season, will live for months without food, the larva would perish in a few days without fresh Potato tops, and would, I believe, starve to death in the midst of a barrel of Potatoes, even if it could get there without being crushed; for, while it so voraciously devours the leaves, it will not touch the tubers. The eggs, which are quite soft and easily crushed, could, of course, only be carried over on the haulm or on the living plant; and while there is a bare possibility of the insect's transmission in this way, there is little probability of it, since the plants are not objects of commercial exchange, and the haulm, on account of its liability to rot, is not, so far as I can learn, used to any extent in packing. Besides, Potatoes are mostly exported during that part of the year when there are neither eggs, larvæ, nor Potato haulm in existence in the United States. There is only one other possible way of transmission, and that is in sufficiently large lumps of earth, either as larva, pupa, or beetle. Now, if American dealers be required to carefully avoid the use of the haulm, and to ship none but clean Potatoes, as free from earth as possible, the insect's transmission among the tubers will be rendered impossible; and when such precautions are so easily taken, there can be no advantage in the absolute prohibition of the traffic in American Potatoes. As well prohibit traffic in a dozen other commodities, in many of which the insect is as likely to be imported as in Potatoes. The course recently adopted by the German government, in accordance with the suggestion made in my last report, is more rational, and will prove a better safeguard:—It is to furnish vessels, plying between the two countries, with cards giving illustrated descriptions of the insect in all stages, with the request that passengers and crew destroy any stray specimens that may be found. Let England and Ireland, together with the other European governments, co-operate with Germany in this plan, and have such a card posted in the warehouses of seaport towns, and the meeting rooms of agricultural societies; and a possible evil will be much more likely avoided." Some English journals are discussing the question as to whether, with the more moist and cool climate of this country, the 10-lined Potato-beetle would thrive here even if imported. "There cannot be much doubt that it will rather enjoy the more temperate clime; for while it thrives best during comparatively dry seasons, both excessive heat and drought, as well as excessive wet, are prejudicial to it. It is argued by others, that on the continent of Europe our Doryphora would not thrive if introduced; and, in a recent letter received from M. Oswald de Kerchove, of Gand, Belgium, author of an interesting pamphlet on the insect, that gentleman says:—'I do not think that the Doryphora, awakened by our early warm weather, could resist the effects of the late cold which we are apt to have in these European countries.' The idea that the climate of North America is less extreme than that of Europe is rather novel to us of the cis-Atlantic; and, from a sufficiently long residence in England, France, and Germany, I am decidedly of opinion that they delude themselves who suppose that Doryphora could not thrive in the greater part of Europe; and that to abandon all precautionary measures against its introduction on such grounds would be foolish. An insect which has spread from the high table-lands of the Rocky Mountains across the Mississippi Valley to the Atlantic, and that flourishes alike in the States of Minnesota, Wisconsin and Connecticut, and in Maryland, Virginia, and Texas—in fact, wherever the Potato succeeds—will not be likely to be discomfited in the Potato-growing districts of Europe. Some few, again, have ridiculed the idea of the insect's passage to Europe in any state, arguing that it is an impossibility for any coleopterous insect to be thus transferred from one country to another. Considering that half the weeds of America, and a large proportion of her worst insect pests, including two beetles—viz; the Asparagus beetle (Crioceris asparagi) and the Elm leaf-beetle (Galeruca calmariensis)—in the very same family as our Doryphora, have been imported from Europe, there would seem poor foundation for such an argument. Moreover, a number of other insects—among them some beetles—of less importance, may be included in the number of importations; and the Rape butterfly (Pieris rapæ), whose progress westward has been simultaneous with that of the Doryphora eastward, and whose importation dates back but a few years, bear witness to the fact that insects more delicate, and with fewer chances of safe transport than Doryphora, may succeed in getting alive from one country to the other, and in gaining a foothold in the new home. The ravages of the insect, bad as they are, very naturally get exaggerated at such a distance from its native home, and the following, from an English gardening periodical, gives altogether a too gloomy picture:—'When once a field of Potatoes has been attacked, all hopes of a harvest must be given up; in a few days it is changed into an arid waste—a mere mass of dried stalks.' It should not be forgotten that the American cultivator, by means of intelligence and a little Paris green, is pretty much master of the Doryphora." It is to be hoped that this exposition of the facts and probabilities of the case will put people on their guard, and cause intelligent action to be taken to prevent the importation of so dangerous a pest as this Potato-beetle.



Bogus Colorado Potato-beetle: *a*, *a*, eggs; *b*, *b*, larva; *c*, beetle; *d*, left wing-cover, enlarged, showing marks and punctures; *e*, leg, enlarged. Colours: of egg, pale yellow; of larva, cream-yellow; of beetle, black, yellow, and brown.

Spined Soldier Bug: *a*, beak, enlarged; *b*, perfect insect, with the wings expanded on one side. Colour, ochreous.

Convergent Ladybird: Larva, pupa, and beetle. Colours—orange, white, and black.

Public Park for Sheffield.—A committee of the Sheffield Town Council have recommended that the town should purchase Meersbrook as a public park. Its extent is upwards of 100 acres, and the committee recommend that the town should offer £500 an acre for it.

OLD TREES.

Old trees are living epochs in the history of the world. Here have they stood for hundreds of years, some even for thousands, looking down upon the smiling earth; now battling with tempests, then basking in sunshine; steadily growing and strengthening and spreading, till at last, venerable in colossal grandeur, and clad with the livery of advancing age, they claim our reverence and inspire emotions of solemn awe. We think, as we look at them, of the lapse of time since the tender radicle first shot downward, and the light plumule aspired heavenward; of the silent forces which have been at work in building them up. Year after year have they formed their buds and expanded their leaves; year after year have they shed the old and developed the new, and slowly but surely have the limbs lengthened and the trunk swollen, and the whole structure, solidly buttressed on every side, grown into symmetrical beauty and form. Every part of the habitable globe can furnish its quota of venerable trees. It has been estimated that even now a third of the earth's surface is covered with forests. In tropical climes, as on the banks of the Amazon, travellers are struck with the number and variety of ancient trees; in temperate regions immense tracts are covered with Pines and Oaks, Cedars and Walnuts, Hemlocks and Chestnuts, Lindens and Ashes, many of which are from 20 to 80 feet in circumference, and from 100 to 300 feet in height; and farther to the north, to the outer verge of the Arctic Circle, the whole surface is covered with trees less gigantic in circumference, and height many of which are of great age.

Pine Trees.

The Pine is said to have a geographical range in America from the Saskatchawan to Georgia, and, beyond the Mississippi, from the sources of the Columbia to the Pacific slope. It grows in every part of New England and in every variety of soil, and it was formerly, as now, the principal tree of Massachusetts, although the older growths have mostly disappeared. Fifty years ago it was not uncommon to find Pines 6 feet in diameter, and 250 feet in height, and masts have been made, on the Penobscot and in Canada, 90 feet in length, and 3 feet in diameter at the smallest part. We have frequently seen sticks of this size on the shores of the St. Lawrence and Ottawa rivers, or Quebec and other ports. The "Worcester Palladium" for July 3, 1844, gives an account of a tree cut in Hopkinton, New Hampshire, previous to the Revolution, from which a mast was hewn 110 feet long, and 3 feet in diameter at the upper end. The dimensions of the stump are not given, but it is said a yoke of large oxen were driven upon it and turned with ease, and that fifty-five yoke of oxen were required to draw the stick to tide-water. Lambert's Pine, on the north-west coast, grows to the height of 230 feet, and the Douglass Pine, which is still larger, grows to the height of 300 feet. Such trees, in the depths of the forest, are often objects of peculiar interest from the striking variety of vegetable life which they exhibit: Lichens—dotted Lecideas, Lecanoras, and Verrucarias—closely invest the bark on the lower part of the trunk; star-like Parmelias spread over them; green and purple Mosses in the crannies, and tufts of Stricta, Rammalina, and Usnea higher up. Quite often, indeed, the Usnea barbata hangs pendent in large masses from the upper boughs in moist woods, trailing in the wind and giving to the trees in the dim twilight an exceedingly weird and ghost-like appearance. The estimated age of the most ancient of these trees is fourteen hundred years, and trees of the age of eleven hundred years are not uncommon. Many of the trunks are from 27 to 36 feet in circumference, and rise to the height of 120 feet without a limb. The Siberian Pine, which grows quite extensively in Switzerland as well as in Russia, although not a large tree, attains often to a great age; a trunk 19 inches in diameter presenting, when cut down, 353 annual circles. The timber of this Pine is of an agreeable perfume, and is much employed for domestic purposes as well as for wainscoting rooms, as it exhales its fragrance for centuries with undiminished strength and without any decrease of weight in the wood. The seeds are esteemed a great luxury, and are eaten in great quantities at the winter festivals. Like all the Coniferæ it is symmetrical in shape, but the branches, which are not long, incline upward and are somewhat contorted.

Cypresses.

Nearly allied to the Pine is the Cypress, a tall and graceful plume-shaped tree, which attains in Europe a great age and size, and which was celebrated in all antiquity for the incorruptibility of its wood and its funereal uses. The oldest tree on record is the Cypress of Somma, in Lombardy, figured by Loudon in his "Arboretum." This tree is supposed by some to have been planted the year of the birth of Christ, and on that account it is regarded with great reverence; but an ancient chronicle at Milan is said to prove that it was a tree in the time of Julius Cæsar, B.C. 42. It is 121 feet high, and 23 feet in circumference at 1 foot from the ground. Napoleon, when laying down the plan for his great road over the Simplon, diverged from a straight line to avoid injuring this tree. The American Cypress, found in the Southern States, grows naturally in low grounds subject to annual inundations, and sometimes rises to the height of 120 feet, with a circumference at the base of from 25 to 40 feet. The roots, which run horizontally at a short depth below the surface, throw up conical protruberances or knees, sometimes 4 or 5 feet high, but usually smaller, smooth without and hollow within, looking not unlike mile-posts, and serving, says Bartram, "very well for bee-hives." These trees, with their streamers of long Moss floating on the wind, are a curious feature in the scenery of the Southern States, and a Cypress swamp is a somewhat formidable object to encounter. Some Cypresses have been known to reach the age of 670 years. This tree, however, attains to its amplest development and age in the *tierras templadas* of Mexico; and one of the celebrated group in the garden of Chapultepec, called the Cypress of Montezuma, which was already a remarkable tree in the palmy days of that unfortunate monarch, nearly 400 years ago, is 45 feet in circumference, and of a height, in proportion to its size, so great that the whole mass appears light and graceful. But this tree, vast as it is, is greatly surpassed by the famous Ahuchute—the Mexican name for the species—of the village of Atlisco, in the intendancy of Puebla, which was first described by Lorenzana, and which, according to the worthy archbishop, "might contain twelve or thirteen men on horseback in the cavity of the trunk." Humboldt says the girth of the tree is 23 metres, or 76 English feet, and the diameter of the cavity is 16 feet. Still more gigantic, however, than this—the Nestor of the race, indeed, if not of the whole vegetable kingdom—is the Cypress, which stands in the churchyard of the village of Santa Maria del Tule in the intendancy of Oaxaca, on the road to Guatemala by the way of Tetuantepec, which, according to Humboldt, is 36 metres or 118 English feet in circumference. In its immediate vicinity are five or six other trees of the same species, each of which is nearly as large as the Cypress of Montezuma; but this tree as much surpasses the rest as they surpass the ordinary denizens of the forest. It still shows no signs of decay, although it bears less foliage in proportion to its size than its younger fellows. Recent travellers speak of other trees near the ruins of Palenque equal in size to the splendid tree at Santa Maria del Tule, and the estimate of the age of these trees is from 4,000 to 6,000 years; perhaps dating back to the beginning of the earth's historic period. Imagination is lost in picturing the possibility even of such longevity; yet, if any reliance can be placed upon estimates sanctioned by the opinion of the most eminent naturalists, we have here trees which have witnessed the gradual rise, the steady progress, and final decline, and even the extinction of a race whose history has sunk into oblivion while the trees themselves are still alive.

Yews.

The Yew is perhaps more durable than any other European tree; thus supporting the opinion first advanced by De Candolle, and now concurred in by most physiologists, that exogenous trees are by their nature of indefinite growth, and never die except by a violent death. Indeed, a Yew,

> Of vast circumference and gloom profound,

is, as Wordsworth truly says,

> A living thing,
> Produced too slowly ever to decay;
> Of form and aspect too magnificent
> To be destroyed.

Of the many trees of this species to be found in England one is mentioned which formerly stood in Braburne Churchyard, in the county of Kent, which was more than 60 feet in circumference, and its age was computed at 2,500 years. A second still stands in the woods of Cliefden called the Hedron Yew, healthy and vigorous, over 80 feet in circumference, and 3,000 years old. The famous Yews of Fountain's Abbey, near Ripon, Yorkshire, were in full vigour when the abbey was founded in 1132 by Thurston, Archbishop of York; and of the seven trees of which history speaks one measured 26 feet and 6 inches in circumference at the height of 3 feet from the ground, and the whole seven stood so near each other as to form a cover almost equal to a thatched roof. The age of the largest is fixed at 1,200 years. The fine Yew at Dryburgh Abbey, which is supposed to have been planted when the abbey was founded, in 1136, and which is in full health and vigour, has a trunk only 12 feet in circumference. The Arkernyke Yew, near Staines, which witnessed the conference between the English barons and King John, and in sight of which Magna Charta was signed, measures 27 feet and 8 inches in circumference, and is supposed to be between 1,100 and 1,200 years old. The Darley Yew, in Derbyshire, which is 29 feet 2 inches in circumference, is estimated to be nearly 1,400 years old; and the Yew in Tisbury Churchyard, Dorsetshire, which is 37 feet in circumference, is estimated to be 1,600 years old. The Yew in Fortingall Churchyard, Perthshire, Scotland, situated in a wild district among the Grampians, is 56 feet in circumference, and is estimated to be more than 2,500 years old.

Cedars.

Next to the Yew stands the Cedar; and, although no very ancient specimens exist in America, in portions of Asia, especially in the Levant, are trees invested with a sacred interest from the fact that they were living in Old Testament times, hundreds of years before the birth of Christ. The grove on Mount Lebanon, so often alluded to in Holy Writ, was first described in modern times by Belon, who visited it about the year 1550. The Cedars of this grove were then, as now, highly venerated by the Maronite Christians, who firmly believed them to be coeval with Solomon, if not planted by his hand; and they made an annual pilgrimage to the spot at the festival of the Transfiguration, the patriarch celebrating high mass under the shade of one of the oldest trees, and anathematising all who should presume to injure these sacred relics. The larger trees of the grove were measured and described by Rauwolf, an early German traveller, in 1574; by Thévenot, in 1655; more particularly by Maundrell in 1696; by La Roque, in 1722; by Dr. Pococke, in 1744; by Labillardière, in 1787; and by M. Laure, an officer of the French marine, who visited them with the Prince de Joinville, in 1836. Formerly, from twenty to thirty of the trees were standing; more recently there were seventeen; still more recently, only twelve; and now we believe there are but seven. We have in our possession a small section from a limb of one of these trees, which we prize highly.

Tropical Trees.

Of the soft-wooded trees of tropical climes, some attain to a great age and size. Thus the Palo de vaca or Cow tree of South America, found in the Cordilleras, in Venezuela, and Caraccas, grows to the height of 100 feet, and is often 7 feet in diameter. Humboldt describes it as a handsome tree resembling the broad-leaved Star Apple; and says that when incisions are made in the trunk a glutinous milk abundantly issues, of a pleasing and balmy smell, rich and thick though not bitter, and mixed with Coffee it could scarcely be distinguished from animal milk. The Banian, or Indian Fig, commonly called the Peepul tree, is constantly planted by the Hindoo temples:

> Branching so broad and long, that in the ground
> The bended twigs take root, and daughters grow
> About the mother tree, a pillared shade,
> High overarched, and echoing walks between.

The roots or props thrown out from the main trunk occupy such a space that one growing on the banks of the Nerbudda covers an almost incredible area. The circumference which now remains is nearly two thousand feet, and the overhanging branches which have not yet thrown down their props overshadow a much larger space. Three hundred and twenty large trunks are counted, and the smaller ones exceed 3,000. Each is continually sending forth new branches and pendent roots, to form other trunks and become the parent of a future progeny. According to Forbes's "Oriental Memoirs," the whole has been known to shelter beneath its shade a company of at least 7,000 men. The Baobab, or Monkey Bread, another tropical tree, found in the Cape Verd Islands and at Senegal, has long afforded celebrated instances of longevity. This tree is remarkable for its small height in comparison with the diameter of its trunk or the length of its branches; trunks of 70 or 80 feet in circumference being only 10 or 12 feet high. The branches, however, are very numerous, often 50 or 60 feet in length, spreading widely in every direction, and forming a hemisphere or hillock of verdure sometimes 150 feet in diameter. The history of these trees, rendered famous by Adamson's account, reaches back to the first discovery of that part of the African coast, and of the Cape de Verd Islands, by Cadamosto, in 1455. The largest trunks were 27 feet in diameter, or 85 feet in circumference. More recently, M. Perrottet has met with many Baobabs in Senegambia, varying from 60 to 90 feet in circumference, green and flourishing, and showing no signs of approaching decrepitude. By some, these trees are regarded as among the oldest in existence on our globe, and their age is estimated by the younger De Candolle at 5,000 or 6,000 years! The famous Dragon tree furnishes another instance of great longevity. One of these trees, found near the city of Orotava, Teneriffe, has been visited by many competent observers,—among others by Humboldt,—and from their statements it appears that the trunk is about 50 feet in girth, and 60 or 70 feet in height. At the discovery of Teneriffe in 1402, nearly five centuries ago, this tree was about as large as it is to-day; and even then it had been immemorially an object of veneration among the Guanches. Since that period it has been hollowed by decay, and shorn of part of its top; still it continues to vegetate, and its remaining branches are annually covered, as they have been for thousands of years, with beautiful clusters of white Lily-like blossoms, emblems of the eternal youth of Nature.

The Oak.

Amongst the hard-wood trees, the Oak unquestionably stands, as it should do, at the head of those growing in the temperate zone, and it is justly regarded as the monarch of the forest. Virgil calls it

> Jove's own tree,
> Which holds the woods in awful sovereignty.

The ancient Pelasgians believed that a deity dwelt in their Oak groves, whom they feared and worshipped. The oracle of Dodona was situated in an Oak grove; and to the inhabitants of Britain and Gaul, under the Druids, the Oak was still more sacred. Oak groves were their temples, and the Mistletoe which hung from its boughs was their favourite wand. For the fullest account of this magnificent tree, which grows in nearly every part of the world, we must refer to the works of Evelyn and Gilpin, Strutt and Loudon, who have devoted pages instead of paragraphs to its consideration. It is not uncommon to find in Massachusetts Oak trees from 12 to 20 feet in circumference, and from 400 to 1,400 years old. The celebrated Charter Oak, of Hartford, Connecticut, which was prostrated in the storm of August, 1854, is said to have been 36 feet in circumference at the ground, and its age was estimated at 800 years. The Wadsworth Oak, of Genesee, New York, lived to a great age, and at the time of its destruction, in 1857, was estimated to be at least a 1,000 years old. Its circumference was about 27 feet, and it was a fair counterpart of Spenser's tree:

> A huge Oak, dry and dead,
> Still clad with reliques of its trophies old;
> Lifting to heaven its aged, hoary head;
> Whose feet on earth had got but feeble hold,
> And half-disboweled stands above the ground,
> With wreathed roots and naked arms.

Of the Oaks of Europe some of the most noted are the King's Oak, in Windsor Forest, which is more than 1,000 years old, and quite hollow. Professor Burnet, who once lunched inside this tree, said it was capable of accommodating ten or twelve persons comfortably at a sitting. The Beggar's Oak, in Bagshot Park, is 23 feet in girth at 5 feet from the ground, and the branches extend from the trunk 48 feet in every direction. The Wallace Oak, at Ellerslie, near where Wallace was born, is 21 feet in circumference, and Wallace and 300 of his men are said to have hid from the English army among its branches when the tree was in full leaf. The Parliament Oak, in Clipstone Park, which is supposed to be the oldest in England, derives its name from the fact that a parliament was held under its branches by Edward I., in 1290, at which time it was a large tree. The Oak in Yardley Chase, immortalised by Cowper, is also a conspicuous and venerable relic. The Winfarthing Oak, now a bleached ruin, is said to have been an old tree at the time of the Norman Conquest, in the eleventh century. The Greendale Oak, in the Duke of Portland's Park, at Welbeck, is described by Evelyn and figured by Hunter, with its trunk pierced by a lofty arch, through which carriages have been driven. The Cowthorpe Oak, in Yorkshire, measures 78 feet in circumference, and its age is estimated at 1,800 years. The Great Oak of Salcey Forest, Northamptonshire, a picturesque wreck, is supposed to be of equal antiquity. On the Continent an Oak was felled at Bordza, in Russian Poland, some forty years ago, upon which 710 consecutive layers were distinctly counted, and the space in which the layers could not be counted was estimated to contain 300 more, making the whole age of the tree 1,000 years. Near Saintes, in France, an Oak is standing which is said to be upwards of 90 feet in circumference. A room has been cut out of the dead wood of the interior, about 12 feet in diameter, and a round table has been placed in it at which twelve guests can be seated at once. The full age of the tree is estimated at 2,000 years.

The Elm.

Next to the Oak in size and popularity must be ranked the Elm, which is found all over the United States and in Europe. Few trees, indeed, are more common in the temperate zone than this; and, although it rarely grows in large bodies, like the Pine and Spruce, it is frequently found in the Canadian woods interspersed with Ashes and Maples of venerable size, and growing to the height of from 80 to 100 feet, with a smooth stem to the height of from 40 to 60 feet. Few sights are grander than those old forests, back from the Ottawa, stretching to the northward undisturbed for hundreds of miles, with giant Pines and enormous Hemlocks completely concealing and shading the earth. The Elm in Massachusetts is a favourite tree, and may be found planted by nearly all old mansions. Every town has its memorable trees of this kind; and they grow in many places from 80 to 100 feet high, and with a circumference of from 12 to 30 feet. The famous Elm on Boston Common is 24 feet in circumference, and on a map of Boston, published in 1720, it is delineated as a large tree. It is said to have been planted by Captain Daniel

Henchman, an ancestor of Governor Hancock, in 1670, and is now 200 years old. The Washington Elm, in Cambridge, is another classic tree, and is nearly 16 feet in circumference at the base. The Pittsfield Elm, greatly revered by the inhabitants of that town, was 126 feet high and 13 feet in circumference at the height of 4 feet from the ground. The Aspinwall Elm, in Brookline, now more than 200 years old, is nearly 21 feet in circumference, and its branches are 100 feet long. The Elm in Hinghham, near the Old Colony House, which was transplanted in 1729, is 13 feet in circumference at 4 feet from the ground. The Springfield Elm, according to Dr. Holmes, is over 29 feet in circumference at the base; a tree is mentioned in Hatfield which is 41 feet in circumference at the base; and another in Medfield is over 37 feet in circumference. An Elm in Wakefield, in front of the residence of Mr. James Eustis, measures 21 feet at the ground; the Sheffield Elm is nearly 23 feet in circumference; and there are hundreds of trees of equal size and age scattered abroad throughout our villages. The European Elm is somewhat different from that of America; and Strutt, in his "Sylva Britannica," gives engravings of several of the most remarkable. Among these the finest is the Chipstead Elm, which is 20 feet in circumference at the ground, and 16 feet at the height of 4 feet. Its venerable trunk is richly mantled with clustering Ivy, and gives signs of considerable age. The Crawley Elm, on the high-road from London to Brighton, measures 16 feet in circumference at the ground, and is a well-known object of interest to travellers, with its tall straight stem and the fantastic ruggedness of its wide-spreading roots. For several centuries this species of Elm has been planted for ornament on avenues and public parks in France, Spain, and the Low Countries, and in England immemorially. It is less graceful than the American Elm, and more sturdy and spreading in its form; but it has the advantage of retaining its foliage for several weeks longer than the American tree. Fine specimens are found in America, in Boston and its vicinity.

The Linden.

The Linden is a native of America and Europe, and in both countries attains to a great size and age. The celebrated Sycamore Maple which stands near the entrance of the village of Trons, in the Grisons—the cradle of liberty among the Rhœtian Alps—was once called a Linden, and under its spreading branches the Gray League was solemnised in 1424. Its age is estimated at 600 years. The true Linden is a favourite with the Swiss, and is intimately associated with important events in the history of that people. The Linden at Freiburg, planted in 1476 to commemorate the battle of Morat, is still standing, and, though beginning to decay, has already proved a more durable monument than the famous ossuary on that battlefield,

> Where Burgundy bequeathed his tombless host,
> A bony heap, through ages to remain,
> Themselves their monument.

Another tree, standing at the village of Villars-en-Moing, near Morat, was a noted tree four centuries ago, and at 4 feet from the ground it has a circumference of 38 feet. Its full age is computed at 900 years. The still more celebrated Linden of Neustadt, on the Kocher, in Wurtemberg, is equally old, and was a remarkable tree at the opening of the thirteenth century; for the village of Helmbundt, which was destroyed in 1226, was subsequently rebuilt in the vicinity of this tree, and thence took the name of Neustadt an der grossen Linden. From an old poem, written in 1404, it appears that even then the tree was of such size, and the spread of its branches was so enormous, that their weight was sustained by sixty-seven columns of stone. At 6 feet from the ground the circumference of the tree is 36 English feet, and the age is computed at 900 years.

The Chestnut.

This is found in Europe and America, and lives to a good old age. In this country large specimens are occasionally found, and many are mentioned by Mr. Emerson in his "Trees and Shrubs of Massachusetts," from 14 to 26 feet in circumference, the largest of which must be from 400 to 600 years old. But, great as these are, they are thrown into the shade, and seem like pigmies, beside the enormous tree on Mount Etna, called the Castagna di cento cavalli, from the tradition of its having once sheltered in its hollow trunk 100 mounted cavaliers under Jeanne of Aragon. Brydone, in his "Tour in Sicily," described this tree in 1770, and says it was then 204 feet in circumference, and had the appearance of five distinct trunks. Kircher, however, who saw the tree a century earlier, speaks of the five as united in one. An engraving of this tree, with its splendid top, is given in Plate lxxxvii of Low's "American Encyclopedia," published in 1807. Besides this, there are other colossal Chestnuts on Mount Etna with undoubted single trunks; and three of these, when measured a quarter of a century ago, had respectively a circumference of 57, 64, and 70 feet. Their age is probably not far from 1,500 years, and the great tree is supposed to be from 2,000 to 2,500 years old. The great Chestnut of Sançerre, France, described by Bosc, has been called by that name for at least 600 years, and as its girth is 33 feet at 6 feet from the ground, its full age is probably at least 1,000 years. The same is true of the great Chestnut of Tortworth, in Gloucestershire, which is known to have been standing in 1150, and which is 52 feet in circumference at the ground. This tree fixes the boundary of the ancient manor, and its age is probably about 1,200 years.

Walnuts and Planes.

The Black Walnut, in the states bordering on the Ohio, often grows to a great size. Michaux says he has frequently seen Walnuts from 6 to 7 feet in diameter, and we have measured stumps in Illinois which were from 5 to 8 feet in diameter. Planks have been sawed from such trees 5 feet wide and 30 or 40 feet long. When the Walnut stands alone it spreads out into a spacious head and extends its branches horizontally to a great distance; but, in the depths of the forest, it is of a more compact growth, is often shorn of its limbs, and has a smooth bole to the height of from 40 to 60 feet. The largest trees are probably from 400 to 600 years old. The Walnut of Europe is equally venerable, and "Galignani's Messenger" mentions one on the road from Martel to Grammont which is at least 350 years old. Its height is 55 feet, and its diameter 14 feet. Its branches, seven in number, extend to a distance of 125 feet, and it bears on an average fifteen bags of nuts per annum. The Buttonwood, or Sycamore, the American Plane, is often a venerable object to behold, and specimens may be found from 6 to 7 feet in diameter, yet sound, notwithstanding the disease which attacked them so generally a third of a century ago, and which threatened for a time to sweep them entirely away. One formerly stood in the town of Wakefield, on land of John Tyler, which measured 30 feet in circumference at the ground. It was hollow within, and the opening was sufficient to permit four men to stand in it easily. Some mischievous boys built a fire in it one Sunday and the tree burned all day, but the flames were extinguished, and subsequently the tree was felled; a portion of the trunk was removed to the common, and a platform erected upon it, from which the Hon. Henry Wilson, now Vice-President of the United States, and then just beginning his political career, delivered a speech in the Harrison campaign of 1841. At a place called Vaucluse, near Newport, Rhode Island, a Buttonwood is described which, in 1839, measured 24 feet in circumference at the ground; and three miles from Hagerstown, Maryland, near Salem Church, a tree is standing which is 39 feet in circumference at the ground, and the cavity within is 11 feet in diameter. A Mr. Gelwicks, with twenty scholars, from eight to seventeen years old, stood in a circle around this cavity. As the growth of the Buttonwood after a certain period is quite slow, it is probable that this tree is 500 or 600 years old, and the others we have described were from 200 to 400 years old. The elder Michaux measured a tree on a small island in the Ohio, which was over 40 feet in circumference at 5 feet from the ground. General Washington had measured the same tree 20 years before, and found it to be nearly the same size. The younger Michaux found a tree in 1802 on the right bank of the Ohio, 36 miles from Marietta, which measured 47 feet in circumference at 4 feet from the ground. Either of these trees must have been at least 600 years old. The Oriental Plane is a tree of nearly the same kind, only its leaves are more palmated, and it has less disposition to overshadow the ground. It was a great favourite with the ancients, and Pliny, in his Natural History, tells a story of its having been brought across the Ionian Sea to shade the tomb of Diomedes, in the island of that hero; that it came thence into fertile Sicily, and was among the first of the foreign trees presented to Italy. From thence it was carried to Spain and France, where, it is said, the inhabitants were made to pay for the privilege of sitting under its shade. The same writer describes some of the principal trees of this kind, and speaks of one in the walks of the Academy at Athens, whose trunk was 48 feet to the branches. He describes also a tree in Syria, near a cool fountain by the road-side, with a cavity of 81 feet in circumference, a forest-like head, and arm-like trees overshadowing broad fields. Within this apartment, made by Moss-covered stones to resemble a grotto, Licinius Mucianus thought it a fact worthy of history that he dined and slept with nineteen companions. But the greatest of all the Oriental Planes is that which stands in the valley of Buyukdere, near Constantinople, described by Olivier, Dr. Webb, and others, the trunk of which is 150 feet in girth, with a central hollow of 80 feet in circumference. The age of this tree it is difficult to determine; but if it is a single trunk, as there is good reason to suppose, it must be the most ancient of its species in existence; and it will hardly be deemed an exaggeration to fix its age at 2,000 years.

The Terebinth Tree and the Olive.

The Terebinth tree attains an almost fabulous age. Josephus relates that he saw a tree of this species near Hebron, which had existed since the Creation; and the Old Testament Scriptures often refer to this tree. Thus, Jacob buried the idolatrous images which his family brought from Mesopotamia under a Terebinth tree; an angel appeared to Gideon under a Terebinth tree; it was in a valley of Terebinths that Saul encamped with all his army; Absalom hung on a Terebinth tree; and Isaiah threatens idolators that they shall be as a Terebinth tree whose leaves fall off. One of these trees, under which the prophetess Deborah is said to have dwelt, was in existence in the days of St. Jerome, and was probably then 1,000 years old. And towards the middle of the seventeenth century there stood between Jerusalem and Bethlehem an old tree under which tradition relates that the Virgin Mary rested as she went to present her son in the Jewish Temple. This tree, however, which was equally venerated by Christians and Mussulmans, was accidentally destroyed by fire in 1616, after having stood for nearly 2,000 years. The Olive is found in Europe and Asia, and, as a tree, is of slower growth than even the Oak. From this circumstance, and the durableness of its wood, it furnishes instances of remarkable longevity. Thus the Olive at Pescio, mentioned by De Candolle, which had a trunk 24 feet in girth, is supposed to have been at least 700 years old; and although now in a state of decrepitude, it continues to bear a crop of fruit of considerable abundance. It is not impossible, therefore, that the eight venerable trees still to be found on the Mount of Olives may have been in existence, as tradition asserts, at the time of our Saviour's passion, and their age may extend beyond 2,000 years. Certain it is that they are venerable trees, and need little aid from imagination to invest them with a peculiar charm.

The "Big Trees."

We must now refer briefly to some of the largest, though not the oldest, trees on our globe. These are the giant trees of California, which are among the most perfect and wonderful specimens of vegetable life. Fifteen or twenty groves of these trees have been discovered in all, on the western slopes of the Sierra Nevadas, in Southern California; but the two principal groves are in Calaveras County, and on the borders of Mariposa and Fresno Counties, but a few miles from the direct road to the valley of the Yo Semite. These "big trees," as they are commonly called, are scattered in groups among the Pines and Cedars throughout a space of several miles, and the collection numbers about 600. They attain to a diameter of from 30 to 50 feet, and rarely fall below 200 feet in height. Mr. Bowles, of the "Springfield Republican," who visited this grove in company with Mr. Colfax and others, in his delightful work, "Across the Continent," says:—"Among those we examined are six, each over 30 feet in diameter, and from 90 to 100 feet in circumference; 50 over 16 feet in diameter, and 200 over 12 feet. The Grizzly Giant, which is among the largest and most noteworthy, runs up 90 feet with scarcely perceptible diminution of bulk, and then sends out a branch, itself 6 feet in diameter." "But," he adds, "they are even more impressive for their beauty than their bigness. The bark is an exquisitely light and delicate cinnamon colour, fluted up and down the long, straight, slowly-tapering trunk, like Corinthian columns in architecture; the top, resting like a cap upon a high, bare mast, is a perfect cone; and the evergreen leaves were a bright, light shade, by which the tree can be distinguished from afar in the forest. The wood is of a deep, rich red colour, and otherwise marks the similarity of the big trees to the species that grow so abundantly on the Coast Range of mountains through the Pacific States, and known generally as the Redwood. Their wood is, however, of a finer grain than their smaller kindred, and both that and the bark, the latter sometimes as much as 20 inches thick, are so light and delicate that the winds and snows of the winter make frequent wrecks of the tops and upper branches. Many of the largest of these trees are, therefore, shorn of their upper works. One or two of the largest in the grove we visited are wholly blown down, and we rode on horseback through the trunk of an old one that had been burnt out. Many more of the noblest specimens are scarred by fires that have been wantonly built about their trunks, or swept through the forest by accident. The trunk of one huge tree is burnt into half a dozen little apartments, making capital provision for a game of hide and seek by children, or for dividing up a picnic of older growths into sentimental couples." A friend of the writer, who visited California with the Boston Board of Trade in 1870, and one of the most noted booksellers of the city, informs us that he rode erect on horseback through the trunk of the fallen tree referred to by Mr. Bowles, to the distance of 120 feet; that he and seven others, standing shoulder to shoulder, walked down the outside of the tree without the least difficulty, such was the breadth of the foothold afforded them; and that ten horsemen, closely arranged in single file, did not reach round the trunk of the largest standing tree, which, by his measurement, was 99 feet in circumference. The silence in this grove is almost unbroken. Not a bird chants its song; not an insect chirps. And to lie at full length on the soft carpet of fallen leaves, and gaze upward to the spiry tree-tops, and breathe the pure and exhilarating air which circles through the forest, is the height of enjoyment and voluptuous repose. We have thus briefly noticed a few of the multitude of ancient trees to be found on our globe. And as we look over the list, we are struck with wonder at the extent and variety of these monuments of vegetable life. No country is destitute of such trees. Scattered everywhere in great profusion, they attest to the boundless magnificence of Nature. And when we survey the whole field, and pause to reflect, we are impressed with the fact that no form of organised life is so venerable as this. Few animals live to the age of 200 years. The duration of man's life, except in the earliest periods of history, has rarely exceeded 100 years. Yet here are trees, which, if we may trust our somewhat imperfect methods of calculation, must be at least from 4,000 to 5,000 years old; and it is not impossible that there may be still standing trees which were in existence when Adam and Eve walked in Paradise.

J. S. Barry, in "Atlantic Monthly."

THE HOUSEHOLD.

GARLIC.

During Elizabeth's reign Garlic and many plants possessing a similar flavour were in great repute in England. That this taste should have died out, to be supplanted in our time by a dislike almost as marked, is an unaccountable fact. It cannot be from its smell, for the much-admired Truffle leaves an odour even more powerful than that of Garlic; nor for any bad effect it produces on the system, for Raspail has written a pamphlet in which he points out the great benefit to be derived from a liberal use of Garlic as an article of diet. According to this author, besides the carminative and stimulating effects which Garlic exerts on the healthy system, and which are admitted by all, this bulb is an excellent anthelmintic, standing far before jalap or calomel in its power of expelling small intestinal worms. It is also a corrective of the flatulence often induced in dyspeptics by the use of certain vegetables, such as boiled Peas, Beans, and Lentils. From its similitude to the Squill it might naturally be expected to have a soothing effect on the lungs when they are attacked by a severe cold; and this, in fact, is the case. A well-made gruel, seasoned with plenty of Garlic, will often cure a recent cough in a single night. But Raspail claims another and even more important result as directly derivable from the liberal use of Garlic; and this is total exemption from many contagious diseases. I am not in a position to sustain or to controvert this assertion; but, judging from the fact that many powerfully smelling bodies, such as chlorine, creosote, carbolic acid, acetic acid, fresh-roasted coffee, &c., do certainly act as disinfectants, it does not seem improbable that Dr. Raspail may be very much in the right. In cultivating Garlic the head should be divided by gentle pressure into its component cloves, as the separate offsets are called; and the off-sets planted in rows about 9 inches apart, leaving about 6 inches between the bulbs in each row. The best time for planting is certainly between October and November, if the soil lies dry. If otherwise, or if circumstances occur to prevent autumn planting, the bulbs may be put in, with almost equal success, any time from February to April. The beds should be prepared by being well dressed with well-rotted manure, and afterwards marked out into divisions 3½ feet wide by means of little alleys running up the side of each bed, the soil from the alleys to be thrown on the bed, and the surface kept slightly rounded. Just previous to planting a mixture of soot and charred refuse should be run along the line in which the bulbs are about to be placed. Plant with the hand, and press each bulb firmly in the soil, but not to any depth. See, from time to time, that they are not thrown up from their places by worms or other insects. Garlic is ready for storing about the end of June or beginning of July—that is to say, as soon as the leaves begin to decay. When this occurs, take up the crop, spread it out to dry on boards, and store it in paper bags, hung up in a dry airy place. On the Continent no salad in which Garlic does not enter as a component part is considered perfect, but instead of slicing up the Garlic, and mixing it with the salad, it is customary to rub it against a piece of crust, which absorbs the fragrance, and slice up the bread into the salad. Salt beef, into which a few cloves of garlic are introduced previous to boiling, acquires a much finer flavour after cooking than it would otherwise have. In roasting mutton, &c., the flavour is greatly improved by making two or three stabs in the fleshy portion, and placing therein a peeled clove or two of Garlic.—"English Mechanic." [Some of the most admired dishes prepared in southern France are flavoured with Garlic.]

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

July 21st and 22nd.

This was, undoubtedly, the finest display of plants, fruits, and florists' flowers seen this season, and affords a striking illustration of the good feeling that exists between horticulturists generally and the new Council. Unfortunately, the weather was unfavourable, heavy rain falling nearly the whole of the first day. Messrs. Veitch, Bull, Williams, Rollisson, Wills, and others, all furnished fine collections of decorative plants; and the show of fruit in competition for Messrs. Veitch's prizes was an excellent one, Grapes, Pines, and Peaches being well represented. Mr. Coleman had the most perfectly "finished" Black Hamburghs which we have seen this season. The Pelargonium Society, too, held its first exhibition on this occasion, in one of the tents, and a fine display of zonals was the result. Taken altogether, this, the last show of the season, must be regarded as a great success.

First-class Certificates.—These were awarded to the following new and rare plants:

Dracæna triumphans (Bull).—A strong-growing slender-leaved variety, of a very dark bronzy colour, the margins of the leaves being undulated and incurved.

Kentia Moorei (Bull).—A white pinnate-leaved Palm, of a rich green colour. The specimen of it shown was about 4 feet in height, each leaf gracefully arched, a circumstance which gives to the plant a very striking appearance.

Zonal Pelargonium Wonderful (Smith).—This is a sport from the now well-known Vesuvius, which it somewhat resembles; but the flowers are semi-double and of good substance.

Martinezia nobilis (Bull).—A striking fan-leaved Palm, with spinose petioles, free in growth, and deserving of attention as a decorative stove Palm.

Juniperus virginiana elegans (Lee).—A dwarf-growing variety of Red Cedar, the lower leaves on the young growth of which are of a creamy-yellow colour.

Adiantum concinnum Flemingii (Fleming).—This is a free-growing pale green variety of a well-known Fern. Its young fronds are tipped with rosy-brown, a colour which gives it additional value as a decorative plant.

Platycerium Wallichii (Williams).—This is a strong-growing Fern similar to P. grande, but even more striking in habit, having much broader fertile fronds. It will make an attractive plant, either in the plant stove or in the Fernery.

Polystichum angulare grandidens pumilum (Ivery & Son).—A dark green depauperated form of a well-known British Fern, the pinnæ of which are singularly abrupt. It is distinct, and well deserving of culture.

Lomaria dolobryensis (Bull).—A robust-growing effective Fern from New South Wales, with pinnated crisped or serrated fronds of a bright green colour. As a stove Fern, it is both handsome and distinct.

Aloe Greenii (Green).—A distinct-looking Aloe, marked with pale green blotches on a dark glossy ground. One of the most striking among variegated kinds.

Stove and Greenhouse Plants.—The large exhibition tent was filled with one of the choicest and largest collections of new and rare plants, perhaps, ever brought together in one show. Of these Messrs. Veitch contributed a large and effective group, backed up by numerous specimens of the new Japanese cut-leaved Acers and large tree Ferns, Crotons, Gleichenias and other rare plants, the margin of this extensive collection being fringed with choice Orchids, Gloxinias, Pitcher plants, Dracænas, and other varieties. Among other plants in this group we remarked Abutilon Darwinii, a new scarlet-flowered dwarf-habited species; Trichomanes radicans concinnum, a fine mass (nearly a yard across) of fresh green semi-pellucid fronds; Cypripedium Harrissianum, with one fine flower, Adiantum amabile, and the still rarer A. Luddemanianum with singularly fasciated fronds. Of A. speciosum and A. princeps there were also good specimens. Among Pitcher plants are observed Sarracenia variolaris, and the pretty little S. psittacina, a fine panful of Darlingtonia californica, consisting of six well-grown plants. Of the true pitcher plants, or Nepenthes, there were fine specimens, grown in baskets, N. hybrida maculata, N. sanguinea (a dwarf-growing plant, with blood-red pitchers), and the still more curious frill-leaved N. lanata, bearing eight or ten fine pitchers, the mouths of which were ornamented with a margin fully an inch broad; N. intermedia, N. Rafflesiana, and N. hybrida, were also well represented. Among new Orchids may be mentioned Cypripedium Sedenii, with bright rosy flowers; Odontoglossum Roezlii album, with snowy blossoms; Vanda tricolor; Masdevallia Veitchiana, with two fine flowers; Odontoglossum Schlieperianum, with pallid flowers resembling those of O. Insleayii; a good plant of Saccolabium Blumei majus, with three good spikes; Masdevallia Harryana, with four large flowers; and the new and distinct Zygopetalum Sedenii, a hybrid which flowered last year for the first time; a strong plant of Cattleya gigas, on a block, bearing two bright-coloured flowers; a plant of the old, but still rare, Epidendrum nemorale, with a spike of long-petaled rosy-lilac flowers; and Cattleya superba, in excellent health and vigour, bearing two fine rosy-lilac crimson-lipped flowers. In this group we also noted a plant of the rare Japanese Lilium callosum bearing a spike of slender-petaled bright scarlet flowers; and Gloxinias, hybrid Begonias, Achimenes, and other flowering plants, were likewise well represented. Mr. W. Bull had one of the finest collections of foliage plants, perhaps, ever seen staged at one time. It consisted of Crotons, Dracænas, Palms, Ferns, and Cycads, enlivened here and there with rare Lilies and Orchids in bloom. Among the rarer plants were the deep green fan-leaved Pritchardia grandis, one of the finest and most distinct of all decorative Palms. Croton majesticum was represented by several plants, all vividly coloured, C. Wisemanii being also well represented. The fine specimen which Mr. Bull possesses of Phyllotœnium Lindenii was staged as fresh as ever. It has great hastate green leaves, conspicuously marked with ivory-white veins, and is certainly one of the most distinct of all Arads for exhibition purposes. The new zebra-striped Dracæna Goldiana was well represented by two or three fine plants, one of them fully a yard in height, and clothed with leaves to the base. A bushy plant of Aucuba japonica luteo-picta, having a large creamy-yellow blotch in the centre of its glossy deep green leaves, attracted considerable attention, and is quite as beautiful as some of the new Crotons. Among Orchids, in this group, was a well-grown plant of the old, but none the less attractive, Oncidium Lanceanum, bearing two large-branched spikes of richly-coloured flowers. In the same group was also a new and very large purple-flowered Bollea. Mr. B. S. Williams contributed some effective banks of flowering and foliage plants, containing fine tree-Ferns, Crotons, and Cycads. Conspicuous among the Ferns was a specimen of Alsophila australis Williamsii, the peculiarity of which consists in its gracefully weeping habit, while well-grown specimens of Gleichenias, Palms, and other foliage plants were judiciously enlivened by Japan Lilies, scarlet-spathed Anthuriums, rosy-flowered Dipladenias, Heaths, Stephanotis, and golden-flowered Allamandas. Messrs. Rollisson, of Tooting, furnished a well-grown collection of stove, greenhouse, and hardy decorative plants, conspicuous among which was Todea intermedia, a noble specimen, fully 4 feet across, the semi-pellucid fronds of which drooped gracefully on all sides; and two panfuls, each about a foot across, filled with the coral-berried Duckweed (Nertera depressa) were much admired, the pans being covered with dense mat-like masses of fresh green Duckweed-like leaves, and studded densely with brilliant orange-scarlet berries. Some rare pitcher plants, Venus's fly-trap (Dionæa muscipula), Orchids, Palms, and Ferns, were also exhibited in good condition in this group. Mr. John Wills set up an effective group of large tree Ferns, Palms, and other decorative plants, as did also Messrs. Carter & Co., Mr. John Ley, and others. Mr. Charles Turner, of Slough, had an effective bank of pyramidal pot-trained Ivies, associated with Japanese Lilies and Palms, and margined by a double row of Moss-covered boxes, filled with cut Roses. Mr. Aldous, Gloucester Road, South Kensington, and Messrs. Lee, of Hammersmith, had also very effective groups of hardy and other decorative plants. Messrs. Ivery & Sons, Dorking, contributed a well-grown group of hardy and British Ferns. A fine bank of Heaths, in flower, came from Mr. E. Morse, of Epsom; and Messrs. Cutbush, of Highgate, contributed Araucarias, Palms, Ferns, and other well-grown decorative plants. A good collection of Palms and other plants also came from Messrs. Osborn & Son, Fulham; and Messrs. E. G. Henderson and Mr. W. Paul had attractive groups of Pelargoniums; of these the collection staged by Messrs. Henderson contained a large number of Cape species, which, if not showy, are invaluable for hybridising purposes. Mr. Parker, Tooting, sent a well-arranged collection of British Ferns in pots; and Mr. R. Dean and Messrs. E. G. Henderson contributed effective groups of Sedums, Echeverias, Mesembryanthemums, Kleinias, and similar plants. Mr. Dean's pans of Sedum acre elegans (yellow), S. lydium (fresh green), S. glaucum (glaucous), and S. corsicum (blue) were very pretty. Messrs. E. G. Henderson had a fine group of the new Lilium Humboldtii, placed in the turf, and fringed with a double row of the pure white L. longiflorum. Mr. Stevens, gardener at Trentham, sent an effective group of Orchids, including Odontoglossum Alexandræ, O. Pescatorei, Epidendrum vitellinum, and Masdevallia Harryana. Mr. Denning staged a lovely bank of Orchids, in admirable condition, from the Londesborough collection, and Mr. Croucher, gardener to J. T. Peacock, Esq., Hammersmith, exhibited an interesting collection of succulents, many of them grafted specimens. Messrs. Jackson & Sons, of Kingston, had an attractive and well-flowered group of Cape Heaths, among which we noticed the large white-flowered Erica obbata; E. Irbyana, a long tubed rosy variety; E. Turnbulli, with long white flowers; several good varieties of E. tricolor, and a choice little specimen of E. aristata obbata, loaded with bright red flowers, and others. Messrs. J. & C. Lee also had a good collection, as had likewise Mr. Morse, of Epsom. Messrs. Paul & Son staged an extensive and varied group of hardy variegated and other foliage plants, and a very attractive collection of cut flowers came from Mr. Parker, the whole the produce of hardy plants. These were neatly arranged in pots of wet sand, and among them were Aponogeton distachyon, Digitalis macrantha, a large yellow-flowered Foxglove; Coreopsis lanceolata, with fine yellow flowers; several beautiful kinds of herbaceous Phloxes, Dielytra eximia, with pendent racemes of rosy flowers; and the yellow-eyed, lilac-rayed Aster pyrenæus. Delphiniums were also well represented, as were likewise Fuchsias, by some well-flowered, pyramidal-shaped plants, several of which were 5 feet in height, and fully a yard through at the base. Among the varieties shown we noticed Senator, a kind with rosy-scarlet sepals and purple corolla; Favourite of Fortune, red, with blue corolla; Wave of Life, red sepals and purple corolla; Empress, scarlet sepals and white corolla; Mrs. Marshall, white sepals and rosy corolla; Princess Beatrice, a white-sepaled variety, with a rosy-salmon-tinted corolla; and Rose of

Castille, an old favourite, with white sepals and purple corolla; Of Carnations, the best collection came from Mr. J. Douglas, of Loxford, who had Rose of Stapleford (Headley), scarlet and white; Guardsman (Turner), scarlet, white, and black; Samuel Moreton (Addis), rose and white; Maréchal Ney (Headley); Mrs. Burnaby (Turner), pink and white; Rosabelle (Schoefield), rose and white; and other good flowers. The first prize for Picotees was also awarded to Mr. Douglas, who had Ethel (Fellows), white, laced with rose; Admiration (Turner), white, laced with purple; Juliana (Turner), white, laced and flaked with vermilion; Picco (Jackson), white, with rich purple lacing; Miss Williams (Norman), white, laced with salmon-pink; and others. In the nurseryman's class, the principal prizes were awarded to Mr. Turner, who also staged several stands of very attractive varieties not for competition. Good collections of Roses (cut blooms) came from Mr. G. Prince, of Oxford; Messrs. Cranston and Mayo, King's Acre, Hereford; and Messrs. G. Paul & Sons, of Cheshunt. A group of Sonerilas, Begonias, and new seedling Dracænas came from Messrs. E. G. Henderson & Sons; together with a variegated Oleander, and other interesting plants. Messrs. Barr & Sugden staged a collection of new American, Japanese, and other Lilies. Mr. Bull exhibited a flowering plant of Disa Barellii, a kind resembling D. grandiflora in every way, excepting that the flowers are bright orange, instead of crimson-scarlet. Some very fine pitchers of Nepenthes came from Mr. David Thomson, Drumlanrig. Among these a branch of N. distillatoria bore seven pitchers, each a foot in length, and of proportionate diameter. The extra size of these was attributed to the use of ammoniacal manure. Two new Masdevallias came from the Rev. Mr. Norman, of Edgeware. M. Normanii had large flowers, the back of the swollen sepaline tube being a bright purple, while the insides of the sepals were greenish-white. Another, supposed to be M. elephanticeps, had large flowers, greenish-yellow behind, with honey-coloured lines. The flowers were much smaller than M. elephanticeps, as figured by Reichenbach in his "Xenia Orchidaceæ." Both received botanical certificates. Mr. B. S. Williams, Victoria Nurseries, Holloway, furnished a plant of the new Stag's-horn Fern (Platycerium Wallichii), which resembles P. grande; but the fertile fronds are much broader and more ornamental. Messrs. Ivery & Sons sent several new hardy Ferns; and Mr. W. Paul furnished a collection of single and double-flowered Zonal Pelargoniums, one of which, a deep crimson double variety, named Talabot, received a second-class certificate. Lobelia cœrulea albo-marmorata fl. pl. was shown in good condition by Mr. Bull. It is similar in habit to the well-known L. Erinus speciosa; but the double flowers, which are very freely produced, are of a light or porcelain-blue colour.

Table Decorations and Bouquets.—Two very pretty dinner table decorations were set up in the fruit tent by Mr. and Mrs. Hudson, of Champion Hill. One table was tastefully decorated with three slender pinnate-leaved Palms, each having a cone-shaped base of Ferns, Water Lilies, Gloxinia flowers, and Grasses. Four small glass baskets were tastefully filled with cut Roses and Gardenia flowers, mixed with fresh green Fern, the handles being draped with Ficus repens. The specimen-glasses each contained a button-hole bouquet, composed of Roses, Heaths, Kalosanthes coccinea, and Cornflowers, backed up by Maiden-hair Ferns and cut-leaved foliage of the Japanese Maple. Mrs. Hudson's table consisted of three trumpet-shaped vases, the bases of which were covered with fresh Fern fronds, on which rested Water Lilies, scarlet Gladiolus, blue Cornflowers, scarlet Anthurium, and Grasses. The stems of the vases were draped with the slender spray-like branches of the blue Passion-flower and the vases themselves were filled with wild Grasses, rosy Rhodanthe, and Orchid flowers, their margins being draped with scarlet Begonias, and the trailing golden-green flower-spikes of Dendrochilum filiforme. Two large specimen-glasses in the centre were filled with fronds of Gleichenia, intermixed with flowers of Miltonia spectabilis and Cattleya Harrisoniæ, which, in such company, had a fine appearance. The smaller specimen-glasses were filled with neat little button-hole bouquets, composed of Carnations and Ferns, Roses, Orchid flowers, and Forget-me-nots. Three very attractive bouquets came from Mr. Aldous, Gloucester Road. They were tastefully arranged, and were composed of Eucharis, Stephanotis, Bouvardias, Heaths, Orchids, Roses, and Ferns.

Fruit Prizes Offered by Messrs. Veitch & Sons.—The best collection of fruit (10 dishes) came from Mr. Coleman, Eastnor Castle, who had very fine Black Hamburgh Grapes, perfect, both in colour and bloom; Muscats, of excellent quality; Royal George Peaches, Elruge Nectarines, Early Prolific and Golden Gage Plums, Brown Turkey Figs, Eastnor Castle Hybrid Melon, and a good Queen Pine. Mr. Miles was second, with Black Hamburgh and Buckland Sweetwater Grapes, Queen Pine, Hybrid Cashmere Melon, Elruge Nectarines, Royal George Peaches, Black Circassian and Bigarreau Napoleon Cherries, Jefferson Plums, and large and fine Brown Turkey Figs. Mr. Sage, Ashridge showed a good collection. Six dishes came from Mr. T. Bannerman, who had good Black Hamburgh and Muscat Grapes, Royal George Peaches, Trentham Hybrid Melon, Elruge Nectarines, and a Smooth Cayenne Pine. Mr. Jones, gardener to the Marquis of Londonderry, Wynyard Park, Durham, had an excellent exhibition, consisting of Black Hamburgh and Muscat Grapes, a Queen Pine, Peaches, Nectarines, and a good golden green-fleshed Melon. Pines were furnished by seven or eight exhibitors, who staged three fruit each. Mr. Scammel had three splendid examples of Charlotte Rothschild, the heaviest of which weighed 6¾ lbs., another 5¼ lbs., and the third 6 lbs. Mr. Miles has three Queens, which weighed respectively 5 lbs. 6 oz., 5 lbs., and 4lbs. 12 oz. Mr. Chamberlain had also three very good and well-ripened Queens. The best black Grapes came from Eastnor Castle; they consisted of bunches, which were firm and compact, densely black in colour, and covered with a thick bloom. Mr. T. Coomber also had good examples, as had likewise Mr. Jones, Wynyard Park. Mr. Bannerman had the best Muscats, the bunches of which were large and remarkably well set and coloured. Mr. Loudin's clusters, to which the second award was made, were perfectly ripened but rather thinly set. The best Peaches came from Gunnersbury, and consisted of Bellegarde, excellent in quality, large and highly coloured. Mr. Fennel had a fine dish of Noblesse. Over thirty dishes of Peaches were staged; and Nectarines were represented by about twenty dishes, Mr. Edmonds being first with Violette Hâtive of excellent quality. Mr. Jack had also highly-coloured and fine fruit. In the class of three bunches of Grapes of any kind except Muscat of Alexandria and Black Hamburgh, Mr. Loudin was first with Seacliffe Black, Golden Champion, without a trace of "spot," and a fine cluster of Madresfield Court. Mr. Cox had three good clusters of Buckland Sweetwater. A good collection of Gooseberries came from the gardens at Chiswick; and Mr. Bennett, Rabley, Herts, furnished six very fine Little Heath Melons, the collective weight of which was 39 lbs. Mr. Jones, of the Royal Gardens, Frogmore, contributed a collection of Cherries, Peaches, Nectarines, and Plums, not for competition. A fine brace of Duke of Edinburgh Cucumbers (Munro) came from Mr. Bennett, who obtained a first prize for them.

Miscellaneous Subjects.—Mr. Perkins, Thornham Hall, Suffolk, showed a fine dish of Tomatoes; and Messrs. Carter & Co. also had a dish of their new yellow Tomato, named Greengage. A new seedling Apricot, named Frogmore Early, came from Mr. Jones; it is a good flavoured fruit, and ripened on the 12th of July on a south wall. Mr. Bennett sent a new Cucumber, named Rabley Hero, a good cropper, and one that is very suitable for market purposes. A new blue-wrinkled Marrow Pea, named Dr. Maclean, a good cropper, came from Mr. Cox, of Madresfield Court. Mr. Bennett sent a fasciated stem of Munro's Duke of Edinburgh Cucumber, fully 3 inches in width, bearing perfect flowers, leaves, and fruit. It is a singular fact that the brace of fruits for which Mr. Bennett was awarded the first prize, were cut from this fasciated branch.

The Proposed Park at Hampstead.—With reference to this Miss Octavia Hill writes thus to the "Times":—It would be most desirable if we could secure open spaces at the very doors of the poor; but to provide a park in Clerkenwell and St. Giles and like quarters long ago became a practical impossibility, and the question now is whether London can afford to lose a bit of green hilly ground actually within a stone's throw of a station of the Metropolitan Railway, well within the four miles radius from Charing Cross, and easily reached in a short afternoon's walk by inhabitants of poor and populous neighbourhoods. Not only is this ground easily accessible, but it lies so high that the air must be fresh and the view always wide and beautiful, even when the flat Kilburn fields have become, as they are fast becoming, one sea of houses, and the buildings have approached on the last side to the foot of them. It is true that the houses which surround these fields are not of the poorest, but neither are those in Park Lane or Connaught Place, yet that does not prevent Hyde Park from being a benefit to the poorest Londoner who is within walking distance of it. Any one who knows the poor, and knows how stifling their small rooms and narrow courts are on an August evening, will feel how desirable it is that the country should not be removed one mile further from them than it now is, which will be done if these fields are built over. Windsor, Epping, and Wimbledon are available for those who can take a day's holiday and pay railway fares for themselves and their families, but such places do not meet the need of the struggling artisan, who on a hot Saturday evening wants to secure a breath of fresh air without expense and without travelling far. Wise men are feeling more and more that many of the gifts which they have been in the habit of making have been productive of evil rather than of good, because they have destroyed the industry and self-reliance of the poor. Here is an opportunity for them to dedicate some of the wealth which they must feel to be a trust in a way which will be clearly and continuously helpful. I hope there are many who would care to feel that they had given an acre, or some portion of an acre, of beautiful ground to the poor for ever—ground which must be a perpetual blessing while London lasts.

The Sycamore-leaved Buttercup (Ranunculus platanifolius).—Few plants were more beautiful with me during the month of May than this pretty Buttercup. It is a tall-growing species with large handsome dark green leaves and a stem from 1 to 2 feet high, bearing numerous large snow-white flowers. My plants, which lasted in bloom nearly a month, came from the Dolomite Mountains, the home of another lovely white-flowered species, which is also growing well with me, though it has not yet bloomed, viz., R. Seguieri.—H. Harpur Crewe, *Drayton-Beauchamp Rectory, Tring,*

Picea nobilis at Thorpe Perrow.—We have a fine tree of Picea nobilis over 30 feet high, bearing a great quantity of cones on the upper half of the tree, the lower part being quite bare. They grow in clusters with as many as ten or twelve closely packed. The weight of the cones has pulled each whorl into the shape of an umbrella, and rather spoiled the symmetry of the tree. I planted this tree in 1852; it is a grafted plant on a weak stock, but after a good deal of coaxing it struck out roots above the graft, and grew away with an extraordinary vigour.—William Culverwell, *Thorpe Perrow.*

Wasps and Rain.—Have any of the readers of The Garden noticed that a continuance of heavy rains, such as we are having now, almost entirely destroys wasps' nests?—W. B.

No. 193.] SATURDAY, JULY 31, 1875. [Vol. VIII,

> "This is an art
> Which does mend nature: change it rather: but
> The Art itself is Nature."—*Shakespeare.*

WORTHLESS LABURNUMS.

The Laburnum is certainly one of the most beautiful of our flowering trees—it can scarcely be called a shrub, as it frequently attains a height of from 30 to 40 feet. Its long, drooping racemes of golden blossoms, appearing in the earliest days of opening spring, have long since caused this graceful tree to rank among the chief favourites of our gardens and shrubberies, in which it is always highly ornamental. A tree in the neighbourhood of York, above 30 feet high, the trunk of which is considerably more than a foot in diameter, was entirely covered throughout the month of May with a shower of golden bloom, sufficient to give it a perfect right to its picturesque French title, La Pluie d'Or, each raceme of flowers being from 15 to 18 inches in length. It should be stated that this tree is not what is commonly called the Scotch variety, the racemes of which are very long, and generally few in number, but of the typical kind, flowering early, with moderately-small foliage, and the upper petals strongly marked with the characteristic jet-black lines. Now it does seem extraordinary, with such a type as this beautiful tree at command, that seedlings of inferior value, which are positively not worth garden room, should be sent out from nurseries. The subject attracted my attention particularly this spring in London, and, on making a round of inspection, I found fully one-third of the Laburnums I met with in the parks and squares utterly worthless as ornamental trees; instead of long, pendent racemes forming a golden shower, such as I have described, these worthless varieties exhibited a sparse display of little stumpy bunches, scarcely as ornamental as the flowers of a yellow Ribes. This, I presume, must arise from the sale of chance seedlings, which spring up as abundantly as weeds in most places where a few old Laburnums exist, and in this way the beauty of one of our most lovely flowering trees is allowed to degenerate. Many years ago, as is well known, it was asserted that a purple kind had been produced. Large numbers of this supposed novelty were disposed of, and purchasers fondly imagined that a striking and beautiful addition had been made to spring-flowering trees. They were, however, doomed to disappointment; for, when the so-called purple Laburnums blossomed, the flowers, though certainly not yellow, were of a purple so dingy as to be quite unattractive; the racemes, too, were few and undersized, and the so-called purple Laburnum was soon cast forth from the place of honour that had been assigned to it, and heard of no more. This little episode, as regards Laburnums, is, however, sufficient to show that they are amenable to improvement; indeed the poor seedling strains of the plant now sold as true Laburnums are alone sufficient proof that the tree is subject to variation; and it is to be hoped that attention will be directed to this subject, and that, although no striking improvements may be made, at all events, only the best of the kinds now in existence will be brought into the market, to the exclusion of worthless seedlings. Sufficient attention is not generally paid in the plantation of ornamental shrubberies to the distinct utilisation of the early-flowering typical Laburnums and the late-flowering Scotch variety. Regard should always be had, with respect to flowering shrubs and trees, to the times of their blossoming, and groups should be formed of those which come into bloom at the same time. For instance, in seasons favourable to the early flowering of the Laburnum, it is in its greatest beauty at the same time as the Lilac, consequently groups formed of Laburnums and both white and purple Lilacs are productive of effects of the most charming kind, while the late-flowering "Scotch" variety might, with equal advantage, be grouped with Guelder Roses (Viburnums) and the pink and crimson Hawthorns which bloom about the same time, as well as with one or two of the distinct new species of late-flowering Lilacs. It may here be observed that, as with the common form many utterly worthless variations occur from seed, so with the Scotch variety examples occur, in which the flowering power is so small that scarcely half a dozen racemes appear in a large specimen, though the foliage, which is the great feature of this kind, is nearly always fine. In the Tyrolese Alps, where it is seen wild, it generally occurs in combination with young Spruce Firs, with which it associates very charmingly, and a poor seedling variety is seldom or never seen.

H. N. H.

ROSES IN 1875.

I have read with pleasure Mr. Hole's delightful paper, "The Roses" (see p. 57), but I cannot endorse his opinion of the Rose season of 1875. Here the Roses have not been up to the mark this year. We were favoured with strong winds nearly all spring, and, to the rosarian, a genuine "fair wind," blowing off the German Ocean, is anything but a treat. My Roses, all through May, looked as though they had been shot at with one of the new "choke bore" guns, the foliage was so torn and riddled. Add to this, continued drought till the middle of June, counteracted with difficulty by almost daily deluging with water. About the 21st of June, however, rain came down heavily, and from that time to the present it has been hard work to cut a decent "pan" of Roses, and to keep down mildew, by shading the blooms and stirring the surface almost daily. Such allies as La France (of which grand Rose, from some fifty plants, I have not cut a good bloom this season), Baroness Rothschild, Marie Rady, Abel Grand, Pierre Notting, Maréchal Niel, and Duc de Rohan (grandest of Roses) have been, in my boxes, conspicuous by their absence; to say nothing of those very "fair weather sailors" (to use Mr. Hole's term), Edward Morren, Monsieur Noman, and Lælia. The Roses that have succeeded best with me are Charles Léfèbvre (always good), Marie Baumann, Senateur Vaisse, Camille Bernardin, and Duke of Wellington, amongst dark kinds; and Victor Verdier, Emilie Hausburg, Duchesse de Morny, Margaret Dombrain (which some people call a weak grower, but of which I have plants now with shoots 4 feet long on cut-back Briars), Queen Victoria, H. P. (the best light Rose I have grown this year, and of which I have been able to show blooms in nearly every one of seventeen stands), and Madame Vidot, that exquisite shell-like Rose, which has been better than usual, among the lighter varieties. The kinds which I have named have been the only ones that have been quite up to the mark out of all the sorts I grow. I attended nine shows; but in only two instances—viz., Nottingham and Wisbeach—did I see grand collections. Of course, there were individual blooms of great merit, and the twelve blooms of Mademoiselle Marie Cointêt, staged by Mr. Bennett at the Crystal Palace, were faultless; but one looked in vain for such stands as were shown a year or two ago by the Rev. Messrs. Hole and Pochin, and the seventy-two which Cranston showed for the £20 prize at Wisbeach two years ago. Regarding Mr. Hole's letter to you on the remuneration of judges, this is a matter which much concerns the amateur rosarian. After toil and trouble which few would undergo, unless bitten by the "Rose mania," one cuts a stand of blooms, and takes them with delight to the local flower shows. To his disgust he has been passed over for blooms far inferior to his own; and for this reason—the persons who judged them have never grown a Rose in its integrity, and do not know how they should be grown. They are very good men for the rest of the show, but pray let them keep out of the Rose tent. It is disheartening to be beaten, not by better Roses—no true rosarian minds that—but by the want of knowledge in the judge. When such men as the Rev. Messrs. Hole, Dombrain, Pochin, and Peach, are judging, the amateur stages his Roses with a light heart, knowing that they will stand or fall on their merits; and it is only fair, both to the judge and the exhibitors, that competent men should be appointed and adequately paid.

Chatteris. John Lewin Curtis.

Iris Monnieri.—As the last flowers of the German Irises were dying off, this Iris opened its bloom with me on the 3rd of this month, and it is a truly beautiful, fragrant, and distinct species—more pleasing, I think, than any Iris I have ever seen. The leaves are dark green, and the flower-stem stands nearly 4 feet high. It flowers in the way of the Spanish and English Irises. The outer divisions are recurved and are of a rich golden-yellow, margined with white. It is not by any means a common plant. The only catalogue in which I have seen it mentioned is one of Messrs. Henderson, from whom I got my plant two years ago.—G. F.

NOTES OF THE WEEK.

—— The effect of the few fine days which we have had on the supplies of cut bloom for the London Market is quite marked, the bloom being rich and bright and the growth strong. To the same cause, no doubt, is owing the enormous size of many of the Mushrooms seen in the market during the week.

—— Messrs. E. G. Henderson send us from St. John's Wood, a blossom of the sweet-scented Water Lily (Nymphæa odorata.) It is a very small flower compared with those we have observed on the plant in the lakelets of New England and in Canada. Is the true ordinary form of the white North American Water Lily in cultivation ?

—— A house in Piccadilly is now adorned with the showy flowers of a plant of Clematis Jackmanni, planted in the area, and trained up the wall, just in the rude way in which the Virginian Creeper is treated. In the suburbs of London, the new Clematises, being vigorous and hardy, thrive very well when fairly treated.

—— Mr. Myatt, of Deptford, has lately sent thousands of cut stems and blooms of the beautiful Lilium eximium to Covent Garden every market day. It is much in demand for church decoration, and is bought in huge baskets (" load-baskets " in market parlance), tied in bundles of more than a dozen flowers each.

—— All interested in London gardens would do well to look at Bedford Square just now; we never before saw Grass so green in a London square, and the Planes look as well as they do on the banks of the Ohio river. The square was arranged during the winter by Mr. Meston, and in a very judicious manner.

—— Very rapid progress is being made with the aquarium and summer and winter garden at Westminster. This will be to a considerable extent a garden structure, and will be glazed by Mr. Rendle, whose system it will certainly test thoroughly. That it is simple and economical in a high degree there can be no doubt.

—— Perhaps the most successful examples of city culture is that of hardy Ferns in the areas of London houses. It is quite common to grow them in this way, and the plants frequently look as fresh and vigorous as if in a moist wood in the country. Some of the London areas, indeed, look uncommonly like sections of dry ditches taken possession of by Ferns.

—— In the gardens of Apsley House we notice some stone seats of simple and massive design, which are improvements in every respect on the "rustic," iron, or other seats usually employed in public and private gardens. Stone seats of good design are common in Italy and sometimes seen in France, and their introduction to our public gardens is desirable.

—— The value of Watercresses sold in Paris in the course of a year is estimated by Mr. Vizetelly at £160,000, an average number of bundles estimated at £400 value being furnished each day to the hospitals and households of the French capital. The fresh unbruised condition in which Watercress is supplied to the Paris market is deserving of imitation by our own growers.

—— Mr. Barron, of Elvaston, moved an Oak tree at Impney in Worcestershire, 52 feet 6 inches in diameter of branches, and 8 feet 1 inch in circumference of stem, when in full leaf, on the 22nd of May of the present year. On Tuesday last he brought to The Garden office shoots 4 inches long made by the tree since its removal. Those who think autumn transplanting the best would do well to bear such instances in mind.

—— Palms and Bay trees are so used as to produce a beautiful effect near the upper part of Park Lane. No really great improvements can be effected thereabouts, however, till the enormous masses of bedding plants are reduced to proportions which will make them agreeable to the eye. Towards the Marble Arch end the beds are only separated by a few feet of turf. There are as many flowers here as would, if disposed in a temperate and judicious manner, embellish half a county.

—— A fine specimen of the variegated American Aloe is now flowering in the Oxford Botanic Garden. The height of the stem, which is not yet fully developed, is 20 feet, and the diameter of the plant from tip to tip is now 11 feet 6 inches; it was formerly 12 feet 6 inches, but the decay which is attendant upon the effort to throw up the flower stem has already caused the leaves to droop. One of the larger leaves measures 5 feet 6 inches in length, 8 inches in width, and 2 feet 3 inches in girth at the base, the body of the plant, from which the leaves start, being just 6 feet in circumference. The common idea that the American Aloe does not flower until it has attained the patriarchal age of 100 years, is a mistake In hot countries, where there is a plentiful supply of nourishment, and the plant has unlimited root room, it attains maturity, blooms, and dies, in as short a period as perhaps ten years; but as the climate in which it is grown becomes colder, and the root space confined to a pot or tub, its development is proportionately longer. The Oxford specimen is probably between seventy and eighty years old, it having been brought to the gardens at an unknown age some seventy years ago.

—— The Rev. Reynolds Hole, writing to us from Caunton Manor, says:—"The Rose harvest, which began with so much brilliancy and bounty, closes in a dismal and damp decay."

—— Elton Pine is this week also the best Strawberry of the London markets. Myatt's Eleanor is also sold to some extent, but it is very inferior in flavour.

—— St. Swithin's day was carefully selected this year for the last grand *fête* at the Royal Botanic Gardens! The band played "Long to rain over us!" with enthusiasm.—"Punch."

—— Pears now come from the Continent in great numbers, but of rough quality as yet; there are many green William Pears, and in a week or so we shall doubtless have these with some flavour.

—— The law case, referring to Euston Square, which we publish elsewhere, points to the necessity of only giving important garden contracts, of the kind in question, to trustworthy men, who are able and willing to fulfil their engagements.

—— Mr. C. Green who once had charge of Mr. Borrer's remarkably interesting garden at Henfield and afterwards of Mr. Wilson Saunders' fine collections at Reigate, is now established as a nurseryman at the Botanical Nurseries, Reigate, Surrey.

—— Mr. Bewley's plants realised, we are informed, £575, a small amount for a collection brought together at so much expense. The tree Ferns fetched £78, a mere nothing compared with their original cost.

—— The season seems to be unusually wet in America as with us. "Moore's Rural" says—"From all parts of the country come reports of heavy and frequent rains, which bid fair to make the present summer known as an unusually wet one."

—— Carter's Green-gage Tomato is beginning to come into Covent Garden Market. It does not, however, seem to "take" for cooking purposes, but it has peculiar merits as a salad Tomato, or for eating raw, the flavour being distinct and good.

—— Messrs. Sander, of St. Albans, send us a remarkable example of the Seville Long Pod Bean, grown in the open field. This is, without doubt, a real improvement in its way, and that is more than can be said of most "new" vegetables. As the name indicates, this variety comes from Spain.

—— Nuts of all kinds are showing a remarkably fine crop in Kent this year. As the larger fruits will probably now escape all danger from the weather it may be said that the present year will be long remembered for the abundance of its fruit in England and throughout western Europe generally.

—— On the 24th of July, 1875, miles of bedding plants in the London west-end parks looked as if they had endured the cold and storms of October without having grown during the summer. In considering the merits of half-hardy bedding plants for garden decoration, it is well to bear in mind how they look in exceptionally cold seasons.

—— The trees in the London squares are now in fine condition, particularly the Planes, so noble in stature and fresh in their perfection of leafage. Mr. Bain, late of the College Botanic Gardens, Dublin, who is now living in London, tells us that our London Square trees are frequently far finer than any to be found in districts supposed to be among the most favourable for vegetation.

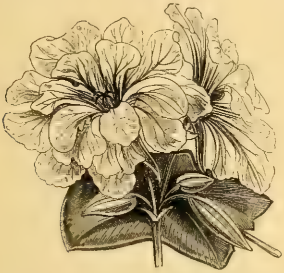
—— The Royal Horticultural Society of Brussels announces that, with the concurrence of the Government, it is organising a grand international exhibition and horticultural congress, which will take place in the end of April, 1876, at Brussels. An appeal has been addressed to the principal horticultural societies of Europe, requesting them to co-operate. The society has also announced that it will bear the expenses of transport upon Belgian railways of all products intended for exhibition, and concludes by remarking that as the intended floral *fête* is the hundredth, everything will be done to render it exceptionally important.

—— A few of Lady Ashburton's plants, sold by Stevens the other day, realised remarkable prices. Turner's variety of Lælia elegans, an important plant that has produced a spike bearing thirteen flowers of a rich dark colour, and deliciously fragrant, fetched £18 6s. 0d.; Phalænopsis Schilleriana, which last year bore 378 flowers, and which was awarded a Lindley medal, brought £33 12s. 0d.; an Anthurium Scherzerianum, that bore forty-five spathes this season, realised £32 11s. 0d.; a fine plant of Cypripedium caudatum fetched £16 16s. 0d.; Saccolabium guttatum, £14 14s. 0d.; and Oncidium concolor, £15. Other lots, of which there were in all 263, brought from £5 to £10 each.

THE FLOWER GARDEN.

DOUBLE-FLOWERED IVY-LEAVED GERANIUM.

WE have received from Mr. Cannell, of Woolwich, flowers and foliage of this plant, of which the accompanying is an illustration. It is perfectly double, and pink in colour, with deep carmine streaks or veins down the centre of the upper petals. It is named König Albert, and is, we believe, the first double-flowered form hitherto obtained in the section to which it belongs. As a decorative plant it will, undoubtedly, become popular owing to its elegant habit of growth and the profusion with which its flowers are produced by established plants. The Ivy-leaved section of the Geranium family, we need scarcely say, make excellent window plants, and of these some pretty specimens may now be seen on some of the balconies in Piccadilly. Either for this purpose or for window-boxes they are unrivalled, and should always be grown, for such purposes, as well as for hanging baskets, for vases, and for the decoration of hollow tree stumps, and for forming edges for beds in the flower flarden. All Ivy-leaved kinds are easily propagated by inserting cuttings in a balcony or window-box during the summer months. In the spring they may be struck easily, and cuttings taken off so late as August may be well rooted in the open border before frost sets in, and make pretty little plants for next year's decorations. B.



Double Ivy-leaved Pelargonium König Albert.

SUCCULENTS FOR BEDS.

Sedums.

SUCCULENTS, in many cases, seem to be taking the place of Geraniums, Calceolarias, Verbenas, and other showy plants, a change which is partly due to fashion and partly to the charming effects that have been produced by means of succulents of late years in our public parks, and also in some private gardens. Their most popular forms occur amongst Sedums, Sempervivums, Echeverias, Pachyphytums, and Mesembryanthemums; and to these may be added one or two Cotyledons, Crassulas, and Kleinias. Sedums serve to heighten the effects produced by bedded out plants. There is no commoner rock plant than the old Sedum acre, but its free-flowering habit for a short time in the summer, and ragged appearance afterwards, render it objectionable for beds. There are, however, two variegated sports from this that are most useful—the one for the winter, and the other for the summer garden; and, singularly enough, it would seem as if the colouring matter of the plant was exhausted in the variegation, as neither of them flower. Sedum acre aureum—the golden-tipped Stonecrop—is a beautiful winter decorative plant, its golden tips peeping out in November, are brilliant through the winter, and only vanish with the heat of May; still, except as a green carpet plant, it is not used for summer bedding. Sedum acre elegans is a silver-tipped variety, and this kind has its colour best when the weather is warm and dry. It grows freely, is close and dense, and forms a very pleasing groundwork. I observe that the variegation is most displayed on the side-shoots that break out from established plants. One of the most effective of the Sedums is glaucum, which has a remarkably free, but dwarf and compact habit of growth, covering the soil with great rapidity. The foliage is of a silvery glaucous hue, upon which, after rain, the water lies in large crystal globules, that sparkle, in the sunshine. This variety flowers but sparingly, the small pink-white blooms appearing, early in June, just above the foliage. Of course these are easily plucked if desired. Sedum lydium (sometimes called lividum) is the best green carpet-plant, excelling all others for that purpose. It is also very free-growing, and speedily forms a complete mass of foliage, which in moist places is of a deep green hue; tinted with brown where much exposed to the sun; and when quite dry and scorched, turns to a deep red hue, and looks like a distinct variety. This blooms thinly, the head of white flowers being thrown up, at the end of May, about 2 inches above the surrounding growth. These, however, in beds are easily pinched out. A very pretty, but distinct, close-growing kind, is Sedum corsicum, a variety that looks like a miniature form of Sieboldii. The foliage is small, but thick and fleshy, and of a glaucous hue. This also flowers thinly, the blooms being borne rather in branches than in trusses; but that does not affect the beauty of the variety, which makes a capital carpet-plant. The sixth and last Sedum is amplexicaule, a variety to which I have before made reference. It is of a woody nature, and has a creeping habit of growth, resembling a very dense-habited Portulaca; and, in good soils, grows most freely. A small piece, given me in February, has spread until it now nearly covers a 12-inch pan; and I believe it will make an excellent bedding plant. Strong leading shoots, thrown out occasionally, may sometimes flower; but these can be easily pulled out, and, as the remaining growth is very close, and of a silvery hue, it also makes a very useful carpet-plant. I could add to these Sedum carneum foliis variegatis, an erect-growing kind, much resembling the Königa variegata in appearance, and in the markings of the foliage; but, although it looks pretty under glass, yet in the open air the variegation is uncertain and lacks colour. Excepting this latter variety, all the Sedums just named are perfectly hardy.

Sempervivums.

Among these may be found considerable variety, both in habit and growth. The commonest of all this family is Tectorum, the well-known Houseleek, but it is rather too coarse in growth to be generally acceptable as a bedding plant. The dwarf Sempervivums are valuable for edgings; and, when once established, grow rapidly and throw out a numerous progeny; thus a perfect compact edging is formed and the soil is held as in a vice. For this purpose the two best are S. montanum and californicum. The former has medium-sized dense heads of growth that are dark green in colour and resemble miniature rosettes. These throw out young plants from the sides on tendrils; and, as the young ones touch the soil, they take root and grow and soon develop into good plants. This Sempervivum will bloom when it attains a certain size, and in the spring it is easy to observe what plants will flower, as these do not produce young ones. Californicum has a more robust growth, and in colour is of a pale green, the spines being tipped with brown. This variety multiplies itself at the base, where it produces quite a large progeny during the summer; these should be separated from the old plant in the autumn and pricked out on a dry bank, where they will make good plants the following year. One of the prettiest of this family is arachnoideum or the Cob-web Houseleek. In spite of its beauty, however, I do not find that it is much used for bedding purposes. It is propagated but slowly; and, as its crowns seldom exceed an inch in diameter, it requires a large stock to make any display. It is most effective when used as "dot" plants—that is, clumps of crowns turned out from large pots here and there in a carpet of some dwarf plant. Of course, these would eventually have to be broken up; but, with care, a succession of good-sized plants can always be had. A very distinct and remarkable variety is S. tabulæforme, the singular flat table-like character of its growth rendering it peculiarly useful as a "dot" plant on a bed of Sedums or other carpet plants. This variety does not multiply freely, and therefore a large stock of it is seldom seen. S. Bollii partakes of the same habit of growth, but is not so effective. It is, however, a most useful variety. S. canariense is a very robust form. Plants of it are much cupped in the centre, and the leaves are large and thick. The surface of these is slightly woolly. Side shoots break out freely, and it is easily propagated. S. Donkelaarii is a very handsome round form, plants of it resembling a neat flat rosette. It grows tall, but is never prettier than when about 6 inches in height, when its form is very perfect. S. phyllioides is a tall, robust form of the preceding, but the crowns are much cupped in shape. It is a vigorous grower, and effective for large beds. S. urbicum is a neat, distinct kind, as the leaves are thick and massive, of a brownish-green hue of colour and slightly pointed; the edges are also somewhat serrated. It is a vigorous grower, and a very desirable variety. Still more desirable is S. arboreum, a tall-growing kind having somewhat narrow leaves, loosely set, and much tinted with brown. It branches freely, and is a robust grower. Equally robust, and probably the most effective of all the tall-growing Sempervivums, is arboreum variegatum, a very showy variegated form of the previously-named kind. This makes a fine plant for the centre of succulent beds, or is very effective when planted in a carpet of Alternantheras, and should be found in every collection.

Echeverias.

These are useful bedding succulents, and no plants are more largely used than are the semi-hardy forms of secunda; other varieties, however, are tender, and need a greenhouse to keep them through the winter, and a gentle heat to propagate them in the spring. Echeveria secunda is well known by its pale green rosette, the tips of the leaves being marked with red. Secunda major is but a glaucous form of the preceding. Secunda glauca differs only in having leaves rather more pointed and still more glaucous. Secunda pumila is a smaller form, with narrow leaves, that are of the colour of secunda major. One of the handsomest of all this section is secunda globosa, the leaves of which are large and ovate, and of a very silvery hue. This is a scarce variety but will be exceedingly popular when well known. Echeveria glauca metallica is intermediate between the well-known metallica and secunda glauca. It has a dwarf massive habit of growth, the leaves very solid and fleshy, and is a very distinct and useful kind. Echeveria metallica is a noble variety, and stands alone in the massiveness of its leaves and their rich metallic hue of colour.

Mesembryanthemums.

Only a few of these are used as succulent bedding plants· Some of the large flowering kinds have at times been used as such; but as their beauty has rested chiefly with the flowers, they have not proved acceptable to those who prefer varieties useful for their foliage. No Mesembryanthemum at present exceeds in popularity and usefulness the well-known cordifolium variegatum. As a carpet-foliage plant it is unique; and, as it also increases in a little heat as freely as the Watercress, it is soon made into a large stock. Another very pretty and robust-growing form is sessiliflorum album; this is a creeping kind, having thick, short, fleshy, yet spiny, leaves, and small, white, sessile flowers. It grows densely, and makes a good covering plant. Another very pretty kind, distinct and effective, is deltoideum; this throws out long branches covered with small obtuse fleshy leaves, that are slightly serrated and of a glaucous hue; it has a more woody habit than the preceding kinds, and requires to be propagated from young growths. A curious, and somewhat tender, form is densum, which resembles a small form of Cactus, as each fleshy leaf is tipped with a bunch of small hair-like spines. It could not be planted largely, but would look very pretty if used, as advised, for Sempervivum arachnoideum. One other useful kind is lupinum, which bears a close resemblance to a miniature Agave; the leaves, which are thick and fleshy, resemble in shape the bows of a finely-formed rowing-boat, and have on each side spiny filaments. It would look very effective grown in a mass.

Kleinias, Pachyphytums, Cotyledons, and Crassulas.

Of Kleinias the commonest form is K. repens, so useful for the glaucous blue colour of its leaves; it has an upright growth, and, if propagated early and planted up closely, makes a very effective mass of foliage. A very distinct and pleasing kind is K. tomentosa, which has a growth resembling repens; but the leaves are more pointed, and clothed with a covering of a white cottony texture; it greatly resembles a huge form of the Cerastium tomentosum. The Pachyphytums are also a limited family, the two best and most useful being bracteosum and roseum. These are slow but sure growers, and should be grown to a good size before being planted out; they are most useful as pot-plants, and much admired; they may be propagated freely from the base of the leaves, but grow slowly into plants. Cotyledons, also, are not a numerous family, and I find the best to be pulverulenta; it has large ovate leaves, thick and fleshy, that are covered with a thick white bloom; it is of robust growth and multiplies freely. The Crassulas are very varied in habit; the best bedder is tetragona, as it has a dwarf compact growth, and requires to be planted thickly to make a good mass of foliage. These constitute a varied collection of bedding succulents, and include all the best known bedding kinds. I have purposely excluded the Agaves, a class of plants which are, as a rule, too large for bedding purposes. A. D.

GROWING AND TRAINING NOISETTE ROSES.

Marechal Niel is allowed by all to be the most perfect and beautiful yellow Rose with which they are acquainted; but the difficulty is to obtain it on a suitable stock. If worked on the Manetti, it only lives and flourishes about three years, after which a knob forms at its junction with the stock, from which no roots are emitted, and, finally, it parts from the stock and dies. The best stock for Maréchal Niel is the Boursault. Two plants of it may be seen at the Darlington Nurseries, growing in a wooden chest—one budded on a new stock raised from the seed of the Boursault, the other upon its own roots. Both plants receive the same treatment, and they are both growing under the same glass structure. After growing twelve months, both of them were measured, when it was found that the one budded on the Boursault had made eight shoots, containing in the aggregate some 800 feet of wood; the other, on its own roots, had not made a quarter of that amount of growth. The Maréchal also succeeds perfectly when budded on Gloire de Dijon, and it likewise makes a good plant when budded on a Briar about a foot high. Its proper home is a glass-roofed house, in which the shoots should be trained up the rafters. It may, however, be grown against a south wall in the south and west of England; but it is folly to attempt growing it in the open ground in the northern counties. A new yellow Rose, sent out this spring, called Perle des Jardins, raised by Levet, is very beautiful, and is said to possess a more hardy constitution than the Maréchal. Its foliage is darker than that of the latter, and the wood is something like that of Gloire de Dijon. The hardiest of the yellow Noisette Roses are Céline Forrestier and Triomphe de Rennes; Solfaterre is not quite so hardy, but any of these may be safely grown against a south wall in any of the counties south of Birmingham. The new Noisette, called Bouquet d'Or, raised by Ducher, is perfectly hardy. I have proved it to be so, and it is a pretty Rose, which grows and blooms freely in autumn; its colour is a deep yellow, with a coppery centre, and the blooms are large and full. Madame Caroline Kuster, an orange-yellow, raised by Pernet, is a free-flowering and promising variety; both these Roses, budded on 4 feet standards, survived the rigour of last winter, and may be grown in the northern counties against a north or north-west wall. To grow yellow climbing Roses well, it is necessary, in the first place, to plant them in a rich, deep, dry, warm soil. The next step towards success is to promote an early and vigorous growth, and to get the wood well ripened, for, without well-matured wood, good flowers cannot be expected. Most Noisette Roses do not bloom well for a year or two after being planted; a free growth of wood should be encouraged in the first instance, and the knife should be sparingly used; merely stop long shoots by nipping out their points in order to get laterals to fill up vacant places where wanted, and in the spring, say about March, pull down the shoots as far as you possibly can do without danger of breaking, and tie their tops to short stakes driven into the ground. In this way, short wiry blooming shoots will be thrown out at every joint, and when these young shoots are about 6 inches long, the top ends of the parent rods may be unfastened, and the rod nailed to the wall or trellis work, in a horizontal position. After the blooming is over, other long rods will commence growing, and these must be kept in an upright position at first to encourage growth, and the following spring their tops must be pulled down and fastened as first recommended, until they push out short side shoots, when they must be lifted up and fastened, as has just been stated, in a horizontal position to the trellis-work. Continue training the tree after this manner, and you will get plenty of blooms. Some say that Gloire de Dijon will not bloom if pruned; but this is a mistake. Madame Levet and Belle Lyonnaise, two offshoots from Gloire de Dijon, possessing the same habit and hardiness, are both large and beautiful Roses; but neither of them blooms so freely as the parent. When plenty of side shoots are obtained by the bending-down system and horizontal training, there will be no difficulty in procuring two crops of bloom every season from any of our yellow Noisette and Tea-scented Roses. Let the side shoots of the season's wood produce their flowers; then cut back, and they will bloom again in the autumn; or treat the spurs as Apple or Pear spurs which continue fruitful, and, instead of cutting out the wood which produced them, shorten in the spurs to one or two buds as soon as the first bloom is over, and so induce them to renew themselves, and flower again the same season. Gloire de Dijon is best procured on its own roots; and many varieties of the vigorous-growing yellow Noisettes may be grown and budded on it. Maréchal Niel "takes" freely on it, and grows and blooms well in the southern counties.

Fencote, near Bedale. Henry Taylor.

SAVING STOCK-SEED TO PRODUCE DOUBLE FLOWERS.

This is a simple operation, requiring little skill or experience; but, as mentioned by "A. D." (p. 37), it is necessary to procure a good strain at the outset, otherwise any attempt to save seed that will produce double flowers will be futile. It can easily be ascertained whether you have a strain equal to your requirements or not by the quantity of double-flowering plants your bed produces. Should there be from twelve to sixteen double flowers out of every twenty planted, then you may commence seed-saving with fair hopes of success. Although the Ten-week Stock will bloom well, and make a good display of bloom, sown at any time from February to the end of May, yet, if seed be required, they must not be sown later than the first week in March, on a gentle heat, and must be pricked out, as soon as the plants can conveniently be handled, into pans containing a mixture of light rich loamy soil, and should be planted in their permanent quarters whilst young, so as to get the plants well established before they begin to form their first buds, which are to produce the seed. Allow your single-flowering or seed-plants to remain where they are planted amongst the double ones, not because the latter have the slightest influence upon the former, but because shifting them at such an advanced stage of growth would prove almost fatal to the production of good seed. Plants with clear bright colours should be selected, all that bring streaked or smeared flowers being discarded. All side shoots should be taken away as soon as they appear, only allowing the leading stem to remain upon the plant. After eight or ten flowers have fully developed themselves or commenced to form their seed-pods, all other flowers, as they open, must be taken away and not allowed to seed at all, but care must be taken not to break or injure the leader, which is required to perform the duty of drawing up the sap for feeding the seed-pods. As soon, however, as the leader has finished flowering, it may be pinched off close down to the seed-pods, which, by this time, will be well developed and filled with fine plump seed. This shows why seedsmen have to charge a high price for first-class seed, as, by this mode, many plants are required to produce only a small quantity of seed, whereas, if the plants were not pinched it would be less trouble to the grower, and the same plants would bring more than twenty times the weight of seed, and the grower would realise a greater profit whilst selling it at less than a quarter of the price. The plants must be allowed to remain in the ground until late in the season, or until the seed is quite ripe, when they should be pulled up and stored in a cool dry place, allowing the seed to remain in the pods until required for sowing, as it keeps better there than when shelled and exposed to the air. The season has a great effect upon the saving of Stock seed, both as regards ripening and also producing seed that will bring double flowers. Should the summer prove hot and dry there will be a much greater percentage of double flowering seed than if it be wet and dull. This is why we cannot compete with, or produce seed equal to that of Germany, their climate being much hotter and dryer than that of England.

Loughborough. John Biddle.

AUTUMN-SOWN ANNUALS.

More than once I have been allowed space in former numbers of The Garden, at this time of the year, to put in a word in favour of sowing annuals in autumn. It is too seldom done, but it is possible that by constantly drawing attention to it, the practice may be established. Those who have only seen Nemophila, Leptosiphon, Bartonia, and others, as they are generally seen, can have no idea of the beauty of such plants if sown in the end of August or beginning of September, either in the places in which they are intended to occupy, or in beds, to be transplanted and established before November frosts and fogs set in. Most annuals like a cool soil, moderate sun, and, above all, plenty of room between each plant. These are conditions which are rarely accorded to them. A healthy autumn-sown plant of Nemophila is frequently from 1½ to 2 feet in diameter, which is itself larger than the entire space generally given to half a packet of seed. Sweet Peas, if sown in August or September, will flower with astonishing vigour the following May, and, if the pods are regularly removed, will continue flowering till the end of October. Salmoniceps.

Garden Buttercups.—Of the Ranunculi we can choose several handsome dwarf varieties. R. amplexicaulis, with entire glaucous leaves, and white flowers with yellow centres, is certainly my favourite. R. aconitifolius fl. pl. (the old "Fair Maids of France") is another pretty kind with very double white flowers. The others worthy of a place in the front row of the border are R. gramineus, with grass-like leaves and yellow flowers, and growing about 10 inches high. R. uniflorus, about 6 inches, and R. bullatus, which also grows about 6 inches in height, with double yellow flowers, very like those of R. acris fl. pl. None of these should be omitted from a collection of hardy perennials.—Oxon.

A Pretty Flower Bed.—Select or make a small isolated bed in some spot fully exposed to the sun, and containing fine sandy peat, or fine sandy soil of any other kind; let it be well drained. Place a few rustic stones round the margin and through the bed, half or more buried in the soil, so that the whole will be elevated a little above the Grass level. Over the bed, besides the stones, &c., plant a few, a select few, of the best dwarf and compact Alpine flowers, and, perhaps, a few of the choicest and smallest spring bulbs—just to vary the bed a little at all points, and give it charms in spring. Then, for chief beauty, put in a number of healthy young plants of Calandrinia umbellata. Make the groundwork of the bed of these, and place a few good specimens on the little elevations and tiny rocks in the little bed. Plant in spring, give a good soaking of water in dry weather, and wait the result. The Calandrinia is a continuously-blooming plant; and, when it begins to flower, if well grown, you may expect a display of the magenta-coloured flowers for many weeks.—W. J.

Old Roses.—Is it not possible to produce a "mania" for collecting and cultivating the good old Roses, once supposed to be the result of the best efforts of our rosarians? We have been rushing ahead in floriculture for the past half century or more, looking more for "new things" than for intrinsic worth, and it is time that somebody started the fashion of gathering the old and good, placing upon them a new valuation. Every summer, when the old "June Roses" come into bloom, I am reminded of the good things left behind in our race for novelties in other classes. The old Mosses of thirty and fifty years ago have not been surpassed by any later introduction. The old single French Crimson still furnishes as pretty buds as the newest perpetual Moss, and who wants a Moss Rose except when in bud? The old Crested Provence has never as yet had a rival, but stands alone the very Queen of its species. And as I look over the old sorts, like George the Fourth, with deep crimson petals, or La Tourterelle, Madame Hardy, Persian Yellow, and similar kinds, I begin to find myself wishing for more of the same, although novelties are abundant, and one might think, from the descriptions given, as far superior to those old and still unsurpassed favourites. A sight of the old Cabbage Rose, Village Maid, and White Bath would be, says "Moore's Rural," like gathering old coins from the ruins of Herculaneum or Pompeii.

FLOWERING OF THE EURYANCIUM SUMBUL AT KEW.

THIS important plant is now flowering in the herbaceous ground of the Royal Gardens, Kew, for the first time in this country. It yields the drug "Radix Sumbul," introduced to Russia as a substitute for Musk about the year 1835, and then recommended as a remedy for cholera. It became known in Germany in 1840, and ten years later in England. It was admitted into the British Pharmacopœia in 1867, and is now prescribed in the tincture form, as a stimulating tonic. It is said to be a nervine stimulant, like valerian, and to possess antispasmodic properties. Further than the above its history has not been found traceable by the authors of the "Pharmacographia." "The plant (says the 'Pharmaceutical Journal') was discovered in 1869 by a Russian traveller, Fedschenko, in the mountains of Maghian, near Pianjakent, a small Russian town eastward of Samarkand. The root, as found in commerce, consists of transverse slices, 1 to 2 inches, rarely as much as 5 inches, in diameter, and 1 inch or more in thickness; the bristly crown and tapering lower portions, often no thicker than a quill, are also met with. The Kew specimen is nearly 8½ feet in height. The root-stock is somewhat fusiform in shape, about 3½ inches in diameter at the top, where it is thinly covered with the persistent fibres of the old leaves. Those of the present year commenced to wither soon after the flower-stem became visible, and were quite dead when its full height was attained. They are supradecompound, much as in some species of Ferula, especially F. campestris, to the leaf-segments of which those of the Sumbul have a very close resemblance. The panicle is composed of about ten alternate spreading branches, the lowest about 5 feet from the apex. The umbels are on short stalks, with ten to thirteen umbellules. The stem, on being wounded, exudes a milky sap, which at first has the exact flavour of angelica, afterwards leaving a bitter taste. The resin of the root does not fully develop its musky smell until after contact with water. It is hoped that seeds may be perfected, and a stock raised for distribution.

The Black Martagon Lily.—We send you a spike of Lilium dalmaticum Catanii. It differs entirely from the common Martagon. We send, for comparison, a spike of Martagon album, which is the exact counterpart, as regards size, of the common species. Is the Dalmaticum Catanii a true species? Surely such a vigourous plant never came from such a parent as the old Martagon? The white, we can understand, as being a variety of it, but further remarks on our part will be unnecessary, as you will clearly see the difference at first sight.—THE NEW PLANT AND BULB COMPANY. [The Black Martagon is a strikingly distinct plant, and a most precious addition to our own hardy bulbs. It is just as valuable an addition as it would be if as far removed, botanically, from L. Martagon as any Lily could be, so that, whether it is a species or not can be of no importance, from a horticultural point of view.]

Striking Roses in the Open Air.—What is the easiest, simplest, and most effectual plan of taking cuttings of Roses, so as to increase them for Rose bushes in cottage gardens or elsewhere, wild Rose hedges, for climbers up trees, or for Rose beds and borders, to peg down with Ivy? I am anxious to increase my hedges of wild Roses for use, as well as for beauty. I have now one about 8 feet high, through which no large animal could penetrate. It is entirely composed of wild Roses, intermixed with the wild Clematis or Traveller's Joy, and, from personal experiments which I have made, I can confidently assert that one-half of the expense and trouble and time now devoted to the planting and culture of Quick hedges would be spared, if persons were better acquainted with the value of our wild prickly plants combined with our native creepers, and that hedges of the wild Rose and Bramble, with the Bryony and wild Clematis, will make an impenetrable fence, even without the addition of anything else; but, where Beech, or an occasional Hawthorn is introduced, our hedges might be a succession of garlands of flowers, as delightful to the eye as the most cultivated ornamental garden. It is lamentable to see the constant destruction of growing hedges by the barbarous practice of allowing the banks (which nourish the roots of live hedges) to be cut away by roadmenders, while the tops of the hedges are cut by some short-sighted people as flat as the turnpike road itself. Such hedges retain the snow, which freezes upon them, and destroys the young growth annually.—CONSTANT READER, *South Wales.* [All Rose cuttings to be struck out of doors are best made the last week in October, and planted firmly in some light sandy soil immediately they are made. The cuttings should be from 4 to 6 inches long; if possible, the base of each should be of the harder and more ripened wood. In planting, let the cuttings be inserted up to the top edge; water, and shade from early spring sunshine. In this way a fair number may be struck without trouble, but only a small percentage of the cuttings inserted must be expected to grow, therefore they ought to be put in thickly.—GEORGE PAUL, *Cheshunt.*]

Different Species of Morning Glory.—Few hardy herbaceous plants are more beautiful in the month of July than the Calystegia. The worst of them is that they are rather wild and rampant in their growth; and it is necessary every autumn to dig up a large quantity of their creeping twitch-like roots, so as to keep them within bounds. They are regular "morning glories," and are shorn of their beauty by mid-day; but they are lovely for the decoration of a breakfast table or morning room. One of the prettiest and most rarely grown species is C. oculata, a kind which produces white flowers shaded with purple in the centre. I obtained it last year from Mr. Thompson, of Ipswich; and it is just coming into full bloom. C. incarnata, which has pale blush flowers, forms a striking object when trained up two or three tall Scarlet Runner stakes; and the same plan may be pursued with advantage with C. dahurica, which has large rosy-pink blooms, streaked with white, much resembling the beautiful British sea-shore weed, C. Soldanella, which deserves a corner to itself in every good herbaceous collection.—H. HARPUR CREWE, *Drayton-Beauchamp Rectory, Tring.*

The Sweet Flag (Acorus calamus).—This is used in other ways besides those enumerated in THE GARDEN of last week (see p. 52). Americans are partial to it as an ingredient in what they call "wine bitters," because, being a powerful stomachic, it is servicable in cases of headache and in pains proceeding from dyspepsia. The Swedes also take it in a spirit, which they distil from Corn; and the candied root of the plant is deemed, both in Turkey and in India, when well masticated, a sure preventive against epidemic diseases. The foliage has an agreeable perfume, and hence arose the custom in former days of strewing our cathedrals with it on festival occasions instead of with rushes; and the French employ the root in various articles of perfumery. Their snuff called La Violet is scented with it. The Sweet Flag is a native of Asia, and is said to have been introduced into Europe from Bithynia. Its generic name is derived from the Greek, and indicates its virtues in all diseases of the eye, but Calamus was the appellation given by the Romans to all things resembling a reed or rush. There are two varieties met with in commerce, one of which comes from Tartary and Poland, the other from the Levant. The Sweet Flag grows on the banks of rivers in the middle and south-eastern counties, and its singular-looking flowers appear about the month of June.—HELEN E. WATNEY, *Sandcliffe, near Petersfield.*

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Violas at Drumlanrig.—Those visiting Drumlanrig Gardens cannot fail to be struck with the beauty and quantity of bedding Violas, of which there are acres there. When seen by me a few days ago they were just in perfection.—W. LAURIE.

How to Prolong the Flowering Season of Larkspurs.—Cut down some of the plants when 9 inches or 1 foot high. These will push from the root again and begin to flower when the first plants are about over. When planted in rows every alternate plant should be cut down.—J. S.

Garlic-scented Rock Cress (Peltaria alliacea).—This was a striking object on my rock-work for some weeks this spring, its dense masses of white flowers quite hid the leaves, and lasted long in undiminished beauty. I am indebted to Mr. Latimer Clark for a very pretty variety of it with golden foliage.—H. HARPUR CREWE, *Drayton-Beauchamp Rectory, Tring.*

Golden Gem Pyrethrum—I have this season grown a variety of the Pyrethrum named Golden Gem, expecting to find it of more value for beds than the ordinary Golden Feather. It is, however, quite useless, being of a tall straggling habit, and running to flower directly after being planted out. I believe it to be only a golden form of the old Pyrethrum Parthenium.—W. M. STICKLAND.

Onosma taurica.—Of all outdoor plants I know of none for delicious fragrance equal to this, and yet how seldom do we see it in gardens. The almond-scent of its flowers can be perceived several yards off. Its flowers, too, are very pretty, and distinct from any others in cultivation, being a fine yellow, arranged in clustering cymes. It grows in a compact evergreen tuft, and thrives in light sandy soil. It is a plant that gives no trouble, and one that is easily propagated by means of cuttings.—G. F.

Sempervivum triste.—I should be glad to be furnished with the history of this plant. Can it be had from seed, or can it be propagated from leaves like others of the same genus? It does not seem prolific in the way of offsets. Of what country is it a native; is it hardy or not? Its distinct colour will make it valuable.—W. D. C. [It is a native of the European Alps, and is perfectly hardy on rock-work. With me it stood out of doors last winter better than it did in frames. It cannot be obtained from seed, and it produces but few offsets.—J. CROUCHER.]

TREES AND SHRUBS.

CONIFERS FOR GARDENS.

Mr. Parsons, the eminent nurseryman of Flushing, Long Island, has been addressing the Rural Club of New York on this subject, and as he mentions certain forms as yet unknown or very uncommon in our gardens, his remarks will interest lovers of these trees.

Assuming that you have a lawn of several acres, the first effort will be to plant its outside lines so thickly as to hide it from the outer world, and give it that quiet which is the charm of a country home. For immediate effect, the trees used for this purpose should be about 10 feet apart, provided the planter has nerve enough to transplant or cut them down when they interfere with each other. For this purpose, among the best will be found the Norway Spruce. The Norway Spruce cannot be dispensed with in any form of planting. While transplanting easily, under favourable circumstances, its roots are very impatient of cold winds, and ten minutes' exposure of them to such, even if it be not freezing, are sufficient to kill it. For this groundwork the Austrian Pine and the Scotch Fir come next in order by their compactness, rapid growth, and patience of pruning when interference occurs. The bright green of the former and the bluish tint of the latter form a marked contrast. For single specimens, also, the Austrian Pine will be entitled to a prominent place. Next will come the graceful and refined Hemlock Spruce, succeeding much better when planted among other trees. However fine in its native habitat, it here loses its beauty as it becomes larger. This can be retained, however, by judicious trimming. No tree, not even the Yew or Arbor-vitæ, bears the shears better. The White Pine will come next for this groundwork, although the wide spread of its branches better adapts it for positions where more room can be given. This is the noblest of all the Pines; rich, feathery, and majestic, it towers above them all, and the music of its leaves gives a charm possessed by no other tree. Those I have named being used for the groundwork, the taste of the planter must be relied upon for selecting, for grouping, or planting singly. First will come the Nordmann Fir, a grand tree from the eastern slopes of the Caucasus. Its habit is close and compact, its colour is a rich dark glossy green, its ultimate stature is among the highest, and it has a royal aspect approached by few other trees. The noble Fir of California would approach it nearly, but for its very slow growth. The blue tint of the latter is very marked, and, when reaching a height of fifty feet, is very imposing. Another very beautiful tree is the mountain form of the Picea grandis, a tree distinct from the flat-leaved coast form. Happening to be the first to send it to England, it was there given my name, Picea Parsonsii. My best specimen of it, killed two years ago, was indeed a thing of beauty. Its leaves curled up in graceful curves around its stem, and lovers of trees would sit upon my piazza and gaze upon it for a quarter of an hour together. Unfortunately, it is very difficult to propagate, rarely to be obtained, and transplants very badly.

Viburnum Dahuricum. (See p. 86.)

The Cephalonian Fir is a noble tree of tall stature. Some years ago I made an ascent of the Black Mountain in Cephalonia for the purpose of seeing this tree in its native habitat, and I was not disappointed. Clothing the upper mountain sides, with sufficient room for its branches, it rose well furnished to a height of 80 feet, and well repaid the labour of the ascent. The Grecian Fir somewhat resembles it, and in colour is between it and the Nordmann Fir. The Picea firma of Japan is a flat-leaved and very distinct species, of rapid growth. The Siberian Fir is a charming species, of slow growth, with a colour unequalled in freshness. For our climate, the family of Piceas is by far the best of all the Conifers. The Oriental Fir belongs to the Abies family, and is an exceedingly refined, compact, and beautiful tree. It is one of those to which the eye will frequently turn and be satisfied. The White Spruce of our northern forests is scarcely surpassed for the symmetry of its shape. Its growth is also compact, and it has a blue-steely tint, valuable for the production of contrasts. The Menzies and Engelmann Spruces have also this steely tint to perfection, and are species of rare merit. The colour of the Engelmann is quite remarkable for its light bluish-grey, and young shoots of it are very beautiful. It is yet, however, difficult of attainment. The Bhotan Pine is a very graceful tree from the Himalayas, growing as rapidly and as tall as the White Pine, somewhat resembling it in general appearance, but with more drooping, pendulous leaves. It is not, however, so well adapted as the White Pine to all localities. The Pinus Ayacahuite is a perfectly hardy species, from the mountains of Mexico, of a still more drooping and graceful habit, and remarkable for the light green of its foliage. The Pinus Mugho is a second-class tree of rather bush-like habit, and rarely growing over 15 feet. Its spreading and marked character make it essential to a lawn. The Atlas Cedar is very distinct and beautiful, the nearest approach to the Cedar of Lebanon which is permissible in this climate, and thought by some botanists to be only another form of it. The Abies elata, a variety of the Norway Spruce, is a remarkable tree, and always excites admiration. It throws out its branches like the naked hairy arms of a giant, and grows with the greatest luxuriance.

Now we come to trees of smaller growth, scarcely beyond the stature of shrubs, and adapted to foregrounds, the points connected with curving walks, and town gardens. For this the Conical Spruce is a neat and compact miniature tree, never getting too large for its surroundings, and always giving satisfaction. The Weeping Norway Spruce has its branches always drooping and hugging its parent stem. If its leader is kept trained upright, a tree will be produced with a height five times the diameter of its branches. The Gregorian Spruce is a sport of the Norway Spruce, rarely reaching over 2 and spreading 3 or 4 feet. It is very luxuriant and striking. The Hudson Bay Fir is a dwarf plant of the same character, with bluish silvery foliage and a more glossy green than the Gregorian Spruce. The Weeping Silver Fir has a more compact and richer foliage than the Weeping Norway Spruce, and with its leader trained in the same way will surpass it in beauty. No lawn or small garden should be without it. The Variegated Hemlock is a white-tipped variety of marked distinctness, and worthy of a place where contrasts are wanted. The small-leaved Hemlock is very distinct, growing close and compact, like a Yew, and is one of the sorts that always attract observation. But the gem of all gems is the Weeping Hemlock. If left to itself, it will remain trailing upon the ground; but if the leader is tied to a firm stake, it can be carried to any reasonable height, and each tier of branches will then droop in graceful curves towards the ground, more like an evergreen fountain than any tree known. If the Nordmann Fir is the king among Conifers, the Weeping Hemlock may worthily be termed queen. The Dwarf White Pine has a feathery and soft aspect, which makes it very attractive; and the Dwarf Scotch Fir, although more rapid and compact, has its marked distinction of colour.

The Yews.

The whole Yew family is remarkable for its substantial and enduring qualities. The lives of single specimens number hundreds of years, and they were largely used when the topiary style of gardening was in vogue. On Long Island all of them are hardy, while the Irish or pyramidal is the better when shielded by other shrubs from the keenness of a north-eastern wind. Indeed, all of them would be the better for this slight protection. The common English Yew is too well known to need description. Its dark foliage and capability of being clipped into fantastic forms give it a place which can only be attained by other members of its own family. The Erect Yew is the most prominent of these. It is more upright in its form, more hardy against cold, smaller and finer in its foliage, and in many ways superior to the common English Yew. The Irish Yew has nothing like it in form. Its diameter is scarcely, I may say, one-fifth of its height, and its colour is rich and dark. The Japan Yew has larger leaves, stronger and more luxuriant growth, and larger diameter of foliage, in proportion to its height, than the Irish Yew, which it somewhat resembles in form. The Golden Yew is the most striking of all. When the new growth is upon it, in June, its surface is like burnished gold, to be seen from all points. I know of nothing so valuable for rich colour effects, and cannot easily forget the view which burst upon me when I came from behind the shrubbery upon the Italian garden of Elvaston Castle, where crowns and pagodas and birds and arm-chairs, made of the Golden Yew, interspersed with clipped forms of the English Yew, made a charming scene, which I cannot describe to you in adequate terms. The Elegant Yew is a lighter tipped variety, somewhat resembling the Golden. The Cephalotaxus is a Yew-like Chinese tree, introduced by Fortune. It has, as most of us know, a very light foliage, bears clipping well, and is so marked in its character that it should be in every collection. The American Arbor-vitæ is well known, and is extensively used for hedges. The Siberian Arbor-vitæ is, however, much superior to it, because it is more hardy, more compact, and does not require trimming. It grows less rapidly, but compensates for its slowness by its superiority when fully grown. While its usefulness for hedges is recognised, it is not so well known that it makes a fine single specimen upon a lawn. The Compact Arbor-vitæ is a round-headed dwarf variety, which is much admired. The Hovey Arbor-vitæ is a golden-tinted variety, perfectly hardy, and superior in many respects to the Golden Arbor-vitæ, which has long been admired for the beauty of its colour and its adaptation to decorative purposes. The Chinese Arbor-vitæ is very attractive, but too tender for this latitude. Of all this family, however, the gem is the Biota elegantissima. Growing in upright flakes, delicate in its leaves, and sun-tinted in its shading, there is an air of refinement about it which eminently adapts it for the vase or the window and table. The Weeping Arbor-vitæ is striking in its habit, and its leaves are thread-like and drooping.

Recent Valuable Acquisitions.

Closely allied to this family are the new Retinosporas, recently introduced from Japan. They number some twenty varieties, and I am indebted to Mr. Thomas Hogg for some very fine ones, not yet known in Europe. It would be impossible to describe in words what can only be known by the eye —the distinctive beauties of them all. Among the best, however, is R. obtusa, with its finely-cut and Fern-like leaves, so hardy that the cold of two years ago had no effect upon it, while the American Arbor-vitæ at its side was killed. The filiformis is very beautiful with its dark green foliage and graceful, drooping branches. The Golden, however, is destined to be the most popular. It keeps its bright golden tint throughout the year, gives a lawn a very bright appearance, is admirably adapted to small house fronts and cemetery lots, and is equally valuable for potting purposes and window decoration. For edging, it is superior to Box; and for low hedges, not desired to be impervious, it would be very beautiful. This whole family is among the most valuable acquisitions from Japan. The Junipers are too well known to need description. The Swedish is remarkable for the fresh greenness of its colour, and the Irish for its steely-blue and its column-like uprightness. The Weeping Juniper is soft and graceful, and the glauca has a most refreshing light lavender tint. This last is a variety of the Red Cedar, and will, doubtless, make a large tree, while it can be clipped into any size and shape. The Prostrate Juniper generally clings to the ground; but by training up a leader, it makes a very picturesque appearance. My specimen thus managed is 8 feet high.

VIBURNUM DAHURICUM.

THIS is a charming hardy shrub, which, in May and June, is covered with numerous umbels of beautiful white flowers. It is a plant, too, which is easily multiplied by means of cuttings made of tolerably firm wood, and inserted in peat soil under a cloche or hand-glass, or the young soft shoots may be taken off early in the season, and struck indoors. As soon as they are rooted, they should be re-potted; and, when they have become established, they may be placed outside in some shady spot, taking care to plunge the pots; young plants thus raised will be sufficiently hard and woody to be wintered outside without shelter. This Viburnum is not particular as to soil, but those that are light and damp, and rich in organic matter, suit it best. It forms a somewhat spreading bush, from 6 to 8 feet high, and has grey downy branches. The berries are oval-oblong, five-seeded, at first red, but when fully ripe in September black and somewhat sweet scented. It is a native of the Dahurian Mountains, and was introduced as long ago as 1785. For an illustration of this plant see preceding page.

PLANTING TREES ON FARMS.

FROM the place which I now write to the nearest village is more than an English mile, and the public road runs the entire length of that distance, between and underneath two rows of very fine old trees of Ash, Beech, Elm, and Oak; their branches form a grand canopy, through which the sun can scarcely penetrate. So grateful is the shade of these old monarchs (said to be 200 years planted) to the pedestrian, that I often, when enjoying a walk underneath, take off my hat reverently, and say—" Peace to the ashes of those planters of old." In this district the fields have been planted with rows and double rows of trees, very large double ditches having been formed and transplanted between, and fields can be seen completely surrounded with huge old trees, which are a pleasing object to the eye but are injurious to the crops and soil within the influence of their tops and roots. All honour is due to the worthy generation of planters who planted, that future generations might enjoy and benefit by their improvements, and we must candidly admit they were far in advance of us of the nineteenth century. Yet it was an error to surround their fields with trees. In the first place, the roots impoverish the soil as far as they travel into the fields, and prevent the plough from being able to do its work, and again the shade of the tops generally draws the crop sown underneath or near them, and leaves it quite useless, and lines of trees are something similar to ribbon lines in the flower garden—they destroy the beauty of the surrounding landscape. Allow me to give the following simple instructions for planting groups, which, as well as improving the entire appearance of the country, could be carried out on a scale of usefulness even on the smallest farm. First plant the angles only of our fields, say from 5 to 10 perches off the corners, according to size and taste; it will be seen that shelter will be secured from three sides without any trouble on our part; then we have to secure and fence the base on one side of the angle next to the field. There are many positions in which four fields are connected at the corners, and it will be seen that in planting, as I recommend, great shelter will thus be afforded, as the four corners of the fields, thus planted, will form a pretty circular clump or grove of four different shades of foliage, if so desired. Although the form of the grove is diamond in shape, all such clumps appear circular when seen from a distance; and, when the trees are twenty years planted, the inner fences could be levelled, in order to allow cattle to enter for shelter from the burning rays of the summer sun. The foregoing simple plan of planting could be easily carried out, and with very great advantage.—" Gardeners' Record."

The Crowhurst Yew Tree.—I enclose a photograph of this, the oldest Yew tree in England. It is situated in Crowhurst Churchyard, about two miles from here, and was mentioned by Aubrey in the reign of Charles I. as measuring in that reign 10 yards in circumference at a height of 5 feet from the ground. Its present girth is about 33 feet. Humboldt, in his " Aspects of Nature," mentions this tree, and it is stated, on the authority of Decandolle, to be 1,450 years old. The old tree was hollowed out about the year 1820, when a cannon ball was found in the centre, which is preserved in a neighbouring farm-house, and, in 1845, the upright branches were blown off by a great storm. The covering around it was fired in 1850. The photograph shows the door to the inside of the tree, where there are seats, which will accommodate twelve persons comfortably. To all appearances, it looks likely to survive several more years. The church was built in 1304.—J. C. Richardson, *Perryfield, Godstone, Surrey.*

Adventitious Buds.—I noticed recently, among some plants which I had been grafting, a singular instance of how a stock will sometimes push out adventitious buds. The circumstance may not be uncommon, but it never occurred in my experience before, nor yet in that of anyone with whom I am acquainted. The way in which the adventitious buds came in this case is as follows :—When the stocks were headed down, a bud pushed and grew strongly right in the centre of the stock, just where the pith is; it may have come out of the hard wood immediately surrounding the pith, but appears to be in the very centre. I should be glad if any of your readers would be kind enough to say if this is a common occurrence.—James Simpson, *Fort Nurseries, Broughton Ferry.*

Eleagnus rotundifolia.—This is so rare that only in one instance can I see it offered in any of the continental catalogues. We have a plant of it here from 4 to 5 feet in height, which, before the recent rains, was covered with pretty scarlet and amber-coloured berries. It is perfectly hardy, having stood out in a western aspect without any protection since the autumn of 1872. The undersides of the leaves are silvery, which is more distinct on young foliage than on that which is older. The berries, which hang on long stalks like Cherries, are produced on the last year's wood; it has never produced berries here before, probably from the fact of its not being sufficiently established. It seems to be easily propagated by means of layering, and is a shrub which should certainly be in every garden.—T. Thornton, *Heatherside, Bagshot.*

An Impervious Hedge.—The Cratægus pyracantha alba, or Evergreen Thorn, is well adapted for single planting, because it can be trimmed into any shape, and can thus be made very ornamental. Its great value, however, is as an impervious hedge, and for this purpose, both in farm and garden, I consider it so decided an acquisition that I am inclined to tell you all I have learned about it during fifteen years of experiment. Its leaf is narrow and oval, about one-quarter the size of that of the Japan Quince. It can readily be distinguished from the old Pyracantha, which has large and round leaves, and is not hardy. It has endured, unharmed, a cold of 14° degrees below zero, and has been equally patient under the most severe drought we have known. The glossy, bright green of its summer foliage changes to a bronzed-green during the winter, but no Pine or Spruce more persistently holds its leaves during cold weather. It is clothed with strong thorns so close and stout that cattle would never attack it a second time. Even a chicken trying to get through it would find food for repentance. It grows rapidly, and a strong plant will make shoots of 1½ to 2 feet each season. If it is neglected several years, and allowed to go untrimmed, it can in two years be brought again into perfect shape. With attention, when young, it can be kept down to a foot for borders; and for farm purposes it can be formed into a hedge 5 feet high. Its flowers are small, like those of the Elder, and grow in clusters about the size of a half-crown piece. These June flowers are succeeded in autumn by showy orange berries the size of Peas. It is easily excited by the first warm days of spring, and should be always planted in autumn. When successfully planted, I think that it meets all requirements for a perfectly impervious hedge. —J. B. Parsons.

Age of Old Trees at Clumber.—At the present time, vistas are being cut out in the pleasure grounds at Clumber, to show the old Cedars, as well as to open out the landscape. I have counted the annual rings of some of the largest trees which were going to decay—Beeches, Larches, Silver Firs, and Elms—and I have found that they numbered from 95 to 105; thus, it would appear that they were planted about a century ago. The solid contents of these trees were from 120 to 230 feet each. To show the necessity of examining old trees standing near mansions, or other buildings, I may add that one of the trees referred to—a fine old Elm, with 200 feet in it, and apparently in perfect health—was found, notwithstanding a diameter of 5 feet at the ground, to have but a shell of sound wood, some 2 or 3 inches thick, on the outside; whilst the interior was as rotten as touchwood. Had it not been for the sheltered position in which it stood, this tree would probably have fallen, without the use of the axe, during some gale of wind more heavy than usual, and might possibly have demolished stately buildings, and perhaps caused loss of life.—J. Miller, *Clumber.*

Creosoting Timber.—I venture to say that if the value of creosote for preserving timber was better understood than it is it would be more appreciated; I have now before me convincing proof of the good that results from creosoting fencing. About five years ago we enclosed a small plantation with a four-rail split Oak fence; as this was our first experiment with creosote, we put in a few lengths of sawn Larch and split Oak uncreosoted as a test. The result now is that the creosoted fencing is quite sound and as clean as on the day it was fixed, whereas the uncreosoted portion is covered with Lichen and Moss, and the posts near the ground are producing a good crop of Fungus, a sure indication that decay is at work. I find that wherever creosote is present no vegetable growth can exist. Whether in the case of heart-wood or sappy Oak creosote is equally valuable for preventing the growth of Lichen, Moss, and Fungus, and it will also enable the wood to resist the absorption of wet. The tank which we use for charging the timber with the creosote is made of the best boiler plate, 17 feet long, 5 feet wide, and 4 feet deep; this size will hold two lengths of rails at once; the creosote is kept simmering two nights and one day before the fencing is sufficiently pickled.—George Berry, *Longleat.*

NOTES AND QUESTIONS ON TREES AND SHRUBS.

The Scarlet-fruited Elder.—This is now covered with its handsome fruit, and when seen in that condition is one of the most ornamental of hardy shrubs. Its value cannot be sufficiently known or it would be much oftener met with than it is.—George Jackman, *Woking.*

The Virgilia at Sion.—Mr. Woodbridge informs us that the measurements of the best specimen of this tree in the gardens at Sion are as follows :—Height, 52 feet; width of branches, 48 feet; circumference of stem, 4 feet from the ground, 6 feet. Will any American correspondent tell us the size it attains in its native woods?

Seed Pods on Acer Negundo variegatum.—We have a quantity of seed pods on this tree. Has it seeded before in this country, and, if so, have the seeds ripened, and plants been raised therefrom, and with what results? I find that all the plants purchased from the nurseries are worked on the Negundo stock, and, as variegated forms of this Acer are not common, I fear that the seeds do not produce variegated plants.—J. S.

Evergreen Berberry Berries.—I wish to learn, through The Garden, something about the family of Berberis. I have fine plants and shrubs of several species besides the common red-berried one. The fruit of these, as you may know, make excellent preserve, jam, or jelly. Can you find out whether the blue-coloured berries are edible when preserved? Are they wholesome, or are they to be avoided? The fruit on all is so abundant this season that I cannot but wish it could be utilised. Those masses, like small Grapes, on the B. aquifolium surely must be fit for jelly.—C., *Sussex.*

Leptospermum lanigerum Hardy.—This New Holland shrub has proved perfectly hardy at Heatherside, where it has been growing quite unprotected in a western aspect since 1869. It produces an abundance of white Hawthorn-like flowers every July, followed by a copious crop of hard round berries. The leaves are fragrant and glaucous; it would make a capital plant for a low wall, and it will succeed in any light open soil free from stagnant moisture.—T. Thornton, *Heatherside, Bagshot.*

COTTAGE GARDENS.

If one strolls from village to village in the remoter districts of the country, nothing is more striking than the contrast afforded by the cottage gardens. In one place Flora seems to have made her home. Every patch of ground is tended; bright with flowers, or affording a goodly promise of hedge-rows of Peas and Beans. No window is without its climbers. Ivy clothes the walls, and keeps the rooms within both dry and warm; and here and there will be seen not only a beautiful flower—all flowers are beautiful—but a new one. How much care, and even cost, has gone to the production of the gardens which are the pride of some of these cottagers? The yellow Austrian Briar is a matter rather of ancient heritage than of purchase; but what shall we say to the deep rich petals of the last new Roses? It is surprising how soon a fashionable flower will be carried by the birds to the remotest hamlet, so only there be a cottager with a passionate love of the beauties of the garden. Go into the next village. Pick your way, and put your kerchief to your nose as you pace the heap that denotes its boundary; the heap of brickbats, stones, broken slates, utterly useless potsherds, and worse refuse, backed by a dense growth of Nettles, showing what Nature would do if gently solicited. If foul puddles are absent, if drainage has been introduced by the strong hand, still the power of listless idleness, and the utter absence of the least glimpse of order or of beauty, mark the entire group of tenements. Poverty is made more repulsive by being exhibited in its most cynical phase. The only vegetable products thought of in that village, beyond the ordinary crops which it is a daily and grudging toil in some way to tend, are the Potato and the Tobacco plant. Where does the cause of the difference lie? We can answer the question with regard to some instances. We strongly suspect that the same answer would apply to the great majority. Where the squire is no longer to be found, it is the doing of the clergyman, or of the clergyman's wife. A bright, trim, well-tended garden, in the manse or the hall; a tasteful, graceful, truly feminine love and care of the flowers, as well as of the fruit; the gift, at odd times, of spare plants, of slips, or of seed; example, and good example; tend to beautify a village by a happy contagion. So, on the contrary, the man who looks at his book alone for his lessons, and has no eyes to see the clearer and holier, as well as the more ancient, lessons that are inscribed on every form of organic life—the man who, with another world on his lips, takes no heed of what is most beautiful in this—the man who remembers nothing of the first garden but the serpent and the apple—is not one who understands his mission to his countrymen, or whose parish will return him an odour of flowers which is no other than an odour of the sanctity of Nature. [In the above, from the "Builder," we are unable wholly to agree with the writer as to the "cause of the difference," for, while we see some parts of the country lovely with cottage gardens, in others it is rare to find a pretty or tidy one, while the gardens of the hall or the parsonage will be about the same in each case.]

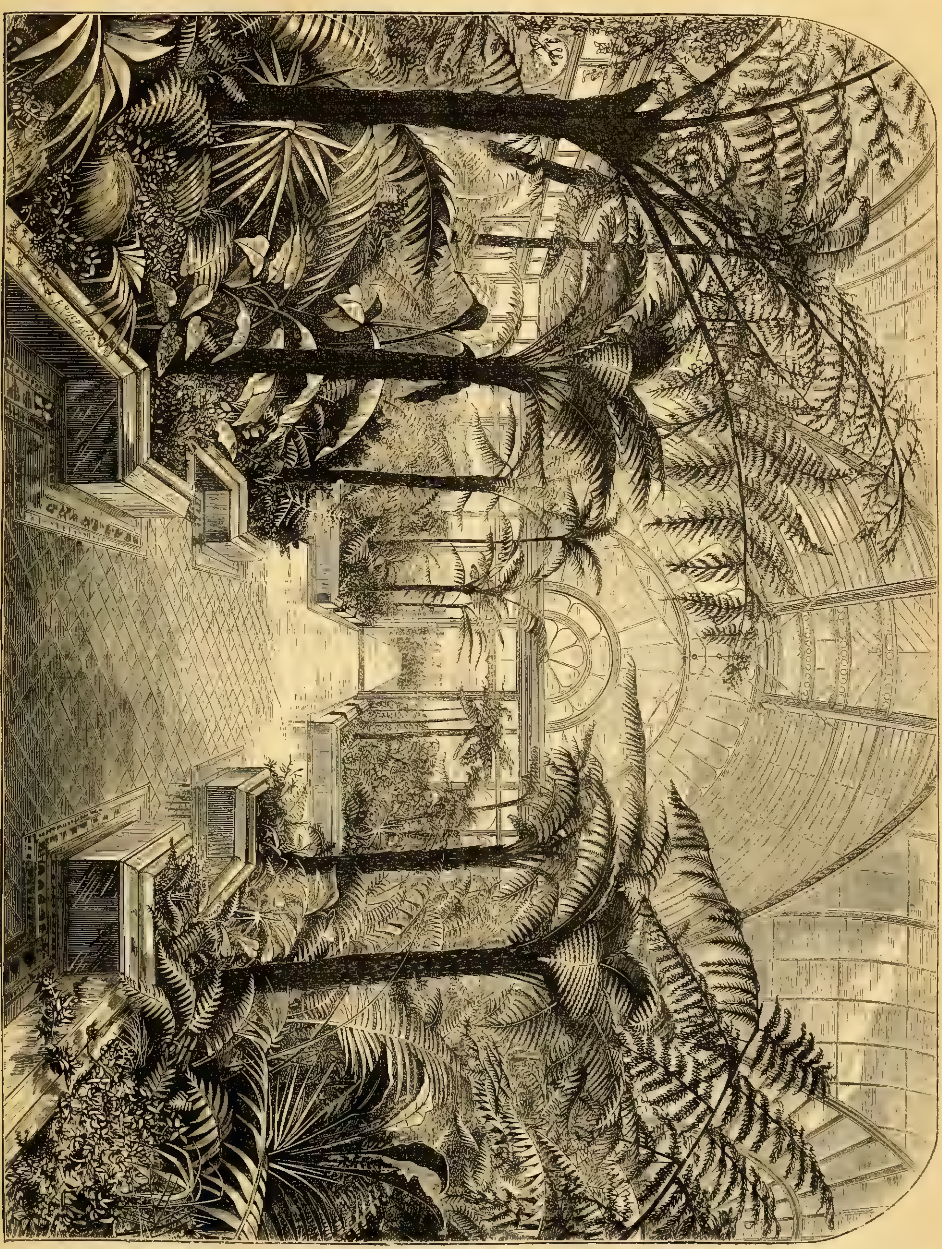
The Giant Sea-kale for the Wild Garden.—Crambe cordifolia is a very fine perennial, but its place is on the turf in rich soil. It has enormous leaves, and small whitish flowers in panicles. Here it is one of the finest ornaments in a wild garden of about 5 acres, associated with Rheums, Ferulas, Gunneras, Centaurea babylonica, Arundo donax, Acanthus, and others.—Oxon.

Flowering Shrubs from Cuttings.—Among the little odd jobs which are likely to be neglected is that of making cuttings of various plants generally propagated in this manner. Of course, it can be done later in the season, but every day's delay lessens the chances of success with many kinds of fruits and flowering plants, even with those considered perfectly hardy. The greater part of our hardy ornamental shrubs may be rapidly propagated by means of ripe wood cuttings taken off in the autumn. Almost any old plant of Weigela, Spiræa, Deutzia, or Philadelphus, will furnish a hundred or more cuttings, and these may become, in a very short time, with little care, as many useful bushes. Cuttings made of this year's growth, and 6 or 8 inches long, will usually take root readily. There are a few kinds, however, which do not grow from ripe wood cuttings, at least not very readily; but most of these can, according to a correspondent of "Moore's Rural," be rapidly multiplied by cuttings of the roots. The common double-flowering Almonds are plants of this kind, and the best way to manage them is to take up a quantity of the roots in autumn, and cut them into pieces 2 to 3 inches long; then mix them with pure sand, storing them away in a cellar or burying them in some dry place in the open ground until spring. The Pyrus japonica, which is somewhat difficult to propagate from cuttings of the branches, grows readily from cuttings of the roots when treated in this manner. In spring the root cuttings may be put in in drills. The double Deutzia crenata grows as freely from cuttings as a Currant, and it is one of the best of ornamental plants.

THE CONSERVATORY AT HAMPTON COURT HOUSE.

Of conservatories recently erected in the neighbourhood of London this is one of the most remarkable, as regards its superior design and finish and the elegant character of the vegetation which adorns it. This is mainly composed of a number of tree Ferns, many of which are distinguished by the slenderness of their stems—these, indeed, looking more like tall antelope's legs than the tree Fern stems with which we are familiar. Among the different plants generally employed for conservatory decoration none, except Palms, can compare with tree Ferns, and even Palms themselves lack that freshness of aspect and exquisite feathery beauty which are characteristic features of many arborescent Ferns when well grown. Many tree Ferns, now in cultivation, are Australasian species, belonging to the genera Dicksonia, Cyathea, and Alsophila; but even these are surpassed in lightness and graceful contour by some of the less-known but certainly more delicately beautiful South American kinds, of which some striking examples may be seen here. These slender-stemmed and exquisitely beautiful American species are so distinct from the ordinary kinds as to be well worthy the attention of all interested in new and rare forms of tropical vegetation. Their distinctive features, too, are all the more apparent, inasmuch as they are growing side by side with well-developed specimens of other kinds, among which we remarked Dicksonia squarrosa, Cyathea dealbata, and other equally well known forms. Beneath the rich South American vegetation just referred to are dwarfer Ferns, such as Adiantum, Pteris, and Asplenium, together with an abundant undergrowth of other well-arranged foliage plants, such as Dracænas, variegated Yuccas, Caladiums, fine specimens of the velvety-purple silver-marbled Cissus discolor, noble Crotons and Allamandas, the girders of the dome above being nearly hidden in wreaths of variegated Cobæa, the yellow-margined leaves of which, enlivened here and there with great purple flowers, had a fine effect. On one side is a tastefully-arranged piece of rockwork, half hid among creepers, and draped with feathery Ferns, Selaginellas, Tradescantia variegata, Grasses, and brilliant orange-yellow, dark-eyed Thunbergias, the latter flowering freely, and, when backed up by cool green banks of Selaginella, having a very pretty effect. At the base of this rockery is a small strip of water, replenished by a dripping cascade from the rocks above, and ornamented with aquatics. The larger Ferns, and other permanent vegetation, are planted out; but flowering plants, such as Achimenes, Begonias, Pelargoniums, &c., are grown in pots, so as to be replaced, when out of flower, by others as occasion may require. As will be seen by the engraving, however, the pots are judiciously concealed from view by means of a deep curb—an important point, and one that might be carried out in all conservatories in which the object is to show the grace and beauty of tropical vegetation to the best advantage. This fine conservatory was built by Messrs. Weeks & Co., of the King's Road, Chelsea, who also designed the picture gallery, garden tea-room, and various other adjuncts of the house and conservatory. Externally, the latter has a striking appearance; its dimensions are 70 feet in length, 30 feet in width, and 34 feet in height, measuring from the highest point.

About Bananas.—Few people who see Bananas hanging in fruit stores think of them as more than a tropical luxury. In fact, they are a staple article of food in some parts of the world, and, according to Humboldt, an acre in Bananas will produce as much food for man as 25 acres of Wheat. It is the ease with which Bananas are grown which is the great obstacle to civilisation in some tropical countries. It is so easy to get a living without work that no effort will ever be made, and the men become lazy and intolerably shiftless. All that is needed is to stick a cutting in the ground. It will ripen its fruit in twelve to thirteen months, without further care, each plant having 75 to 125 Bananas, and when that dies down after fruiting, new shoots spring up to take its place. In regions where no frost ever reaches, Bananas are found in all stages of growth, ripening their fruit every month and every day in the year. Col. Whitner, near Silver Lake, Florida, has probably the largest Banana plantation in the United States, containing fully 10,000 plants in bearing. Some of these are large trees, which do not die after bearing their fruit, but the majority are of the dwarf species, which are renewed every year. Slips are planted about 8 feet apart and rapidly push up leaves disclosing six or eight small Bananas behind this protection. Some plants will have sixteen or twenty leaves and bunches of fruit, bending over as it ripens, forming a most beautiful sight.



VIEW IN NEW CONSERVATORY AT HAMPTON COURT HOUSE.

THE INDOOR GARDEN.

GLASS HOUSES, AND THEIR ADAPTATION TO THE CULTURE OF DIFFERENT SUBJECTS.

Notwithstanding all that has been written on the subject, we are often applied to for information on horticultural matters by people about to begin Grape growing, or some other branch of gardening; and some of the most frequent enquiries are "What kind of house must I build?" or "What kind of pit should it be?" &c. It is hardly conceivable what unfortunate mistakes are committed by many people—gentlemen amateurs and others—who set about building hothouses according to their own way of thinking, or act on the advice of their own workmen or a country carpenter. We were asked for advice respecting a Peach-house lately, in which the Peach tree leaves were always scorched in sunny weather, and on examination found that it was about 50 feet long, a clumsily-built structure, without any ventilation but the doors at each end, and two squares holes in the roof that opened like a skylight. This had been judged ample, though there was a hot flue along the front, which did the mischief every time the sun shone out in the forenoon. In another case it was a span roof, with no ventilation but the doors, and there was no choice on warm days but to have a roasting temperature, or a hurricane of cold wind throughout, which wrought disastrous results among the inmates. This was a modern structure, also of local design. A few panes drawn out at the apex of the roof was a necessity till further alterations could be made. Home-made structures of this kind are always the most expensive, and generally ill adapted to the end in view. The local tradesmen or home carpenters cannot now compete with the professional horticultural builder, who has every appliance for executing such work expeditiously and well, and we speak with some experience of both. It is, however, only necessary here to point out the kind of structures most suitable for various purposes and subjects.

Fruit Houses.

Vineries.—Little need be said about these, except that a lean-to facing south is undoubtedly the best, and the only form of structure which should be adopted for Vines which have to ripen their fruit by midsummer, or earlier. There is a form of lean-to Vinery, however, which cannot be too severely condemned, and that is the deep brick-fronted structure. Extensive ranges have been built in this way by eminent builders, that have turned out most unsuitable for Vines in the early stages of growth. The young plants almost always suffer under the shadow of the brick wall, and it is only by the second year, when they rise up to the glass, that they make head-way and recover. All Vineries should be glazed down near to the ground. For late Vineries the span roof is in every way the best. Lofty houses are considered by most good Grape growers to be better than low ones, as they permit a great development of leaf and branch. This is no doubt true; but had we to build Vineries in which we wished to produce a great quantity of fruit as soon as possible, we should rather take it off the height and add it to the length—the longer the house the more extra Vines can be planted for fruiting immediately. A span-roofed house, 50 feet long, and 21 feet high, of proportionate width, would accommodate, say, twenty-five extra Vines besides the permanent ones, which would yield, perhaps, the year after planting, between 200 and 300 lbs. of Grapes; whereas a house 100 feet long, 13 feet high, and of proportionately reduced width, would cost little, if anything, more, would accommodate double the number of extra Vines, and yield twice the weight of Grapes. Ultimately the difference would be nothing; but to those to whom early returns are of importance the extra Vines are of no little consequence, for it must be remembered that their number cannot be compensated for by length of cane. The best exposure for Grape houses is undoubtedly the south. Muscats, and other late ripening varieties, should not be grown in any other aspect. Early varieties, like the Hamburgh, will ripen well either on an east or west aspect, but they will want more artificial heat. North walls have been spoken of, even lately in a contemporary, as being available for Vineries, but we doubt the result, except under very peculiar circumstances; besides, it is seldom necessary to use a north wall for such a purpose.

Peach-houses.—For early Peach-houses, nothing surpasses the lean-to; indeed, it is the best structure for Peaches at any season, as, in our climate, the trees can never have enough of sunshine. Some prefer to cover the back wall with trees, and the front trellis as far up as it can be done without shading those at the back. This is simply "robbing Peter to pay Paul." Peach trees grow to a great size, and will cover, if allowed, an immense area of trellis work; the short back and front trellis does not permit this beyond the most limited extent, and the trees have to be kept within bounds after a very few years, by hacking off the branches and constant root-pruning. But, give a good long roof, wire it to the top within 18 inches of the glass, plant the trees in front, and, under ordinary circumstances, each tree will cover an area of three or four hundred square feet in six or seven years, and bear proportionately. We have proved this long ago. As regards Melon and Cucumber-houses, and similar structures, nothing is superior to lean-to pits with a sharp angle for early forcing, whilst for late work low span-roofed houses of the same kind are the best. For all kinds of fruit houses, the ventilation should be of the most ample description, to avoid that roasting to which trees are subjected in sunny weather under deficient ventilation, and which always results, sooner or later, in injury.

J. S.

A LARGE INDOOR VINEYARD.

The "Sanatorium" at Saltash, near Plymouth, which was erected about seven years since, is an extensive greenhouse, built at great expense and labour, for the production of Grapes and other fruit. It is situated on the southern side of a hill in a sheltered valley at the western end of the Port View Estate, and its immense area of glass might be seen from various points in the neighbourhood. The Vinery is 450 feet long by 80 feet broad, and it will help the reader to perceive the extent of it when we state that the glass covering it weighs upwards of 20 tons. It contains more than 500 Vines, the majority being in bearing condition, though not yet fully grown. These include fifty varieties of Grapes, the whole of them having been personally selected from the south of France while in fruit. In situation and arrangement, the place is well laid out, and, what is of great importance, it is abundantly supplied with water, which is carried over the entire building and distributed in an efficient manner. The Vineyard—which we prefer to call it—is pleasingly arranged in tiers, and divided into several compartments, with walks passing through them. In every respect the capacity of the place to produce Grapes equal to any grown on the Continent has been proved. The sight of the Vineyard at this moment is remarkable. Above, around, in every part of it, immense bunches of Grapes are ripening in countless profusion. The vista of every pathway in each of the compartments, and of every line of sight, turn in what direction one may, shows overhanging canopies of Grapes, prodigal in their luxuriance. Many of the bunches are large, being more than 6 inches by 15 inches. Even yet, however, the full resources of the place have not been reached, either in amount or earliness of fruit. It is certainly not more than three-fourths covered with the Vines; and, consequently, every year the produce is rapidly increasing. Last year 3,000 lbs. of Grapes were obtained; nearly double that amount will be gathered this year. The full bearing capability, which it is expected will be reached in about three years' time, has been estimated at 10,000 lbs., and that estimate is considered within the mark. It is a very important fact, also in the value and success of the undertaking, that the luxuriance of growth and the abundance of fruit are scarcely less striking than the freedom of the Vines and Grapes from disease. We may add (says the "Devonport Independent") that Peaches are also grown in the Sanatorium. A crop of Potatoes of a highly remunerative earliness was likewise obtained this season from the ground between the rows of Vines. In testimony of the safety and security of the structure itself, and in falsification of any forebodings that might have been made of the precariousness of the erection, it should be stated that during the whole seven years of its existence scarcely any damage has been inflicted either by wind or water. The place has not yet been heated, but a considerable outlay is about to be made in this direction to secure early ripening, by which it is hoped to gather the crops in July instead of, as at present, in September. There are some acres of surrounding land of an analogous character to which the Vinery may be extended, the site commanding a southern view.

CRASSULA COCCINEA.

This is an old greenhouse favourite, much thought of in former days, when gardeners used to grow specimens of it several feet through, each shoot being furnished at its summit with a broad truss of waxy-scarlet flowers, showy and sweet scented. The plant also grows out of doors freely in summer, and when in flower makes one of the most brilliant and effective of beds. This plant is known now-a-days as Kalosanthes. To flower it well it requires to be grown in hot, dry quarters. Cuttings, which strike very easily, should be made from the young shoots which have not flowered in August or early in September. Make the cuttings about 3 inches long; do not stop them, but divest them of a few of their bottom leaves, and pot each singly and firmly in a 3-inch pot, using a light compost of sand, leaf mould, loam, and pounded bricks or crocks. They will soon root if placed near the glass in a warm pit, or an intermediate house shelf, if they are not damped too much at top or bottom. When rooted remove them to a cool dry greenhouse for the winter, and give scarcely any water till spring; the object at this time is simply to keep them at rest. About the beginning of March the plants may be potted in 8-inch or 9-inch pots, which is a suitable size for plants intended to have six or seven shoots. A little heavier compost should be used for this, the final potting, and with it plenty of broken crocks or bricks, taking care also to drain the pots thoroughly. After potting, the plants should have a growing temperature near the light. A warm greenhouse or pit will do, but do not give too much water at any time. At this stage some of the plants will break up into a number of shoots at the top, and the others will keep to a single shoot only. The former should be thinned out to six or eight shoots, and the latter pinched at the top to make them break; also the young shoots secured in this way will bear the flowers. By May the plants will be growing fast, and at this time they may, in warm localities, be plunged out of doors in a warm corner. In front of a hothouse is a good place for them, and it is a common practice to plunge them in sand, which gets hot with the sun; otherwise they need not be plunged at all, but simply set on a hard surface. In cold localities it is better to grow the plants under glass all summer, with plenty of air and sun. Whichever plan is adopted, let the plants from this time grow uninterruptedly, and before cold weather sets in take them into any house where the temperature is genial and dry. Here they will show flower, if the trusses are not already in an advanced state, and the season of flowering may be prolonged by keeping the plants in cool houses. If the plants are intended for planting out, they must simply be wintered in a cool house, and not permitted to flower, and planted out the following season, where they will be certain to flower and make a bright display. J.

Canarina Campanula.—This does not seem to be so generally known and cultivated as it deserves. Its pendent, waxy, compressed, bell-shaped flowers, with rounded reflexed segments, have somewhat the appearance of a colossal tazza inverted. Its colouring and markings remind one of Abutilon Duc de Malakoff. It continues to bloom for a considerable time, and the individual flowers remain fresh for a fortnight; but the plant is deciduous, and the fleshy roots require to be put in heat in early spring, as they are very slow to start, but afterwards grow rapidly. I have found that, if allowed to suffer from want of water—of which it requires a liberal supply during growth—the flower buds perish; and it does not recover the check during the season.—J. M., *Hawkchurch, near Axminster, Devon.*

Tropæolum tricolorum.—This is one of the prettiest of the Tropæolums; but it is not adapted for decorating large spaces; for balloons, trellises, or a potful of Birch twigs, however, it makes an excellent covering. The foliage is small and neat, of a verdant green colour, and the flowers, which are of a rich orange-scarlet, are borne in such profusion as to make the plant appear a complete mass of colour. When well grown and flowered—an easy matter—few greenhouse plants match it for brilliancy. The tubers, which are not unlike a Potato in appearance, should be potted in November in light, rich soil, and in well-drained pots. Eight or 9-inch pots are a suitable size for them, and if they are small, like marbles, perhaps several may occupy a pot. They may be wintered in a quiet corner in a greenhouse, where they only require to be kept from getting dust-dry. About April, or sooner, if the temperature has been kept much above 45°, the slender young shoots will appear, and whatever kind of trellis or support they are to have should be fixed in the pot then; there is nothing better than branching Birch twigs, about 2 feet high, stuck round the edges of the pot in a symmetrical form; to these the young shoots should be led till they take hold themselves, which they will do quickly. After this the plants want little attention, except directing the leaders occasionally, so as to cover the branches and prevent the shoots from running into knots and bundles, which it is hopeless to unravel. They grow rapidly, and soon drape their supports from top to bottom with their beautiful foliage and flowers. Water freely while growth continues, and keep the plants in a good light, but shade from bright sunshine will prolong their beauty. About midsummer the leaves will begin to fade, and water must be given more sparingly, until the plants go to rest, in which condition they remain till potting-time again comes round in November.—J. S.

Rhynchospermum jasminoides.—The profuse flowering habit of this plant, its handsome foliage and pretty white flowers, render it still one of the best of greenhouse climbers, though it can be grown in the bush form with the assistance of a stake or two to support it. It is one of those plants from which one may cut largely, and the flowers have a chaste effect in a bouquet. They are borne in trusses, and are agreeably perfumed—something like the Lilac. It may be propagated by cuttings under a bell-glass in a slight heat, and, when rooted, grows freely, flowering immediately. It is best planted out when employed as a climber, and soon covers a large space, but it does very well in a pot. Peat, loam, and sand, in equal quantities, make a good compost for it, and whether planted out or kept in pots it must have good drainage.—Q.

Soot as a Manure.—To strong-growing greenhouse plants, such as Pelargoniums, Fuchsias, Azaleas, Cytisus, Roses, Chrysanthemums, Solanums, and Hydrangeas, soot is a valuable and easily-obtained stimulant. A handful of it, stirred in a 3-gallon can of water, has a marvellous effect on all the plants just named, and many others besides. It induces vigorous growth, and adds freshness and substance both to leaf and flower. It is best to use it in small quantities, and often, rather than charge the compost with more carbon than the plants can readily assimilate. In the case of Chrysanthemums and Hydrangeas, I have employed a mixture of soot and fresh manure from the cow-shed with the best possible results, but wherever the last-named ingredient is employed, it should be well mixed in a tub or tank and allowed to settle, otherwise the Grassy particles remain on the tops of the pots, and, while giving them an unsightly appearance, also exclude that free aëration which all healthy roots require.—B.

Statice profusa.—The flowers of this Statice are of a lovely blue colour, and lasting, as they do, long after being cut, are excellent for house decoration. S. profusa Rattrayana is said to be a more than usually free-flowering variety of profusa, but its excellence in this respect is perhaps only due to culture. It is, however, perhaps best to procure this variety, which is a greenhouse plant very suitable for furnishing purposes. Peat, loam, and sand in equal quantities make the best compost for it, and it requires a dry temperature at all times of the year; damp causes mildew, which is its worst enemy. It is difficult to strike by means of cuttings, which must not be subjected to a strong heat, but must be given time under a bell-glass. I have seen an unusually pretty effect produced by the free use of this plant amongst a houseful of variously coloured Geraniums of the zonal type.—W.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Daphne indica odorata.—This sweetly fragrant plant succeeds best in an intermediate house. Pot it in peat, loam, and sand in moderate-sized pots, or plant it out in the bed near the light, and allow the plants to grow as they will. Cut the flowers when fully expanded, without taking too much wood from the plants, and put them in a glass by themselves when wanted for room decoration.—S. J.

A Well-grown Heliotrope.—I have here growing in the conservatory a remarkably fine specimen of this plant, which is 12 feet high and 5 inches round the stem, and covered with flowers, its branches at the top spreading 12 feet on a trellis. I do not know its name, but it was planted twenty-eight years ago and is one of the same sort as that in the conservatory of the Botanic Gardens, Regent's Park.—F. B.

Adiantum Farleyense.—Under favourable circumstances, the spores of this germinate freely; but, being originally a sport from A. scutum, the seedling plants, though bearing a strong resemblance to A. Farleyense in a young state, invariably revert to the original form.—W. Cox, *Madresfield Court.*

—— In reply to your correspondent (p. 51) respecting Adiantum Farleyense, it is no uncommon thing to get up a stock of seedlings, but probably none will be of the same character as the parent. I have a large quantity from seed under the stage on which A. Farleyense is growing, but none so well fringed as the true sort. Adiantum scutum was raised by Mr. R. Veitch from A. Farleyense, but he had none come true from seed.—J. Garland, *Killerton, Exeter.*

Princess Royal Rhododendron.—This fine variety of greenhouse Rhododendron has the unusual habit of flowering nearly all the year round. We have seen the same plant in flower in spring, summer, autumn, and winter—one truss being fully expanded when another was in bud, a third just forming, and so on. In colour the flowers are a rich rose, and altogether a good plant of it is a gay object in a conservatory, in which it deserves a permanent corner. Peat and silver sand form the best compost for it, and it should not be shifted too frequently.—W.

PLANT-COLOURS.

A ray of light is found, on ordinary analysis, to be capable of producing all the colours of the rainbow. A more careful analysis, however, serves to show that it consists of three colours only. For this reason colours have been divided into two kinds—primary and secondary. The primary colours are red, yellow, and blue. They are, however, seldom or never found neutral, red being usually tinted with blue or yellow, yellow with red or blue, and blue with red or yellow. The secondary colours are formed by the blended rays of the primaries, the blue and yellow rays forming green, the red and yellow forming orange, and the blue and red forming violet. When coarse blue and yellow powders are intimately mixed, they assume the appearance of green; but, with a powerful magnifier, the blue and yellow granules may be detected, each reflecting separately and independently its own ray. The colours of plants are granules enclosed in cells, which are about 1-500th of an inch in diameter. The beauty of the colours is greatly added to by air and water. The beautiful satin appearance of flower petals is produced by a layer of cells containing air, occupying a position immediately below the surface, as in Pelargonium. The crystal appearance of others is produced by the superficial diffusion of cells containing water, as in Azalea splendens. The following table of colour will be readily understood:

Primary	RED	Neutral.
Secondary . . .	ORANGE-RED . . ORANGE . . . . . ORANGE-YELLOW .	Shades of Orange.
Primary	YELLOW	Neutral.
Secondary . . .	YELLOW-GREEN . GREEN . . . . . BLUISH-GREEN. .	Shades of Green.
Primary	BLUE.	Neutral.
Secondary . . .	VIOLET-BLUE . . VIOLET . . . . . VIOLET-RED. . .	Shades of Violet.

White, in the abstract, is the negation of colour, but in plants it is a pale tint; black is the density of violet. Brown is an effect produced by the partial opacity of the cells in which the colours are contained. This table, however, contains only a select few of the almost numberless colours that are to be found, and which are produced by the ever-varied groupings of the colour cells; and all these are capable of still further multiplicity, since every colour so formed may be diluted from its deepest hue to the palest tint the eye can recognise. It is scarcely possible to study this beautiful branch of botany without being reminded of the allusion made in scripture to the Lilies of the field. The Lilium chalcedonicum is the plant supposed to be alluded to as having outshone Solomon in all his glory. But it matters not whether the Lilium chalcedonicum or some inferior plant be selected for examination, the same exquisite finish is found in the same perfection in each microscopic cell; and the microscope has fully shown that the richest silks of the present day, and fabrics of the finest texture, are excelled in beauty by the tissues of the humblest flower. The colours of leaves and barks arise from the same cause as those which are produced in the petals of flowers; and, with the assistance of the table of colours, every hue may be accounted for, including all the variations of the autumnal foliage, from the almost colourless tissues of the embryo to the russet-brown of the dying leaf. There exists in every plant a yellow colouring matter called xanthophyl (leaf-yellow). It is found in the plant during the whole of its life, as may be seen in silver-margined leaves, the striated leaves of Indian Corn, and variegated leaves; it is found in the plant after it is dead, as may be seen in straw, &c., and is not destroyed by fumes of sulphur, as the blue and red colours are. The blue colouring matter is called cyanophyl (leaf-blue), and the red colouring matter rhodophyl (leaf-red). These three colours are always present in varying proportions, as may be seen by exposing the red stems of Fuchsia to the fumes of sulphur, when the red will be destroyed, and the blue and yellow will appear blended in green; or a purple Primrose, when the blue and red will be destroyed, and yellow will appear.

There are also tertiary colours, in which the three colours are distinguishable, namely, orange-violet, violet-green, and orange-green; and it is computed that there are 990 distinguishable shades of colour in the vegetable kingdom. These are contributed as follows:

Red	1
Yellow	1
Blue	1
Shades of orange	82
Shades of green	82
Shades of violet	82
Shades of orange-violet	82
Shades of violet-green	82
Shades of orange-green	82
Shades of brown	495
Total	990

Yellow is the natural colour of the plant, the blue and the red colours are acquired. The blue colouring matter is developed by a deposit of carbon. The red colouring matter is developed by the oxidation of the blue. When the plant is first developed it is of a pale yellow-green, the blue colour of which is produced by the deposit of carbon from the sugar of the sap. As soon, however, as its system is sufficiently developed to absorb carbonic acid from the atmosphere, the plant becomes a bluer green. Shortly before the autumn the leaf ceases to exhale oxygen, without ceasing to absorb it (Macaire). Now, when a leaf ceases to exhale oxygen, it also ceases to absorb carbonic acid, for the oxygen given off is always in proportion to the carbonic acid absorbed (De Candolle). Hence this may be regarded as the commencement of decay; the blue colouring matter becomes gradually oxidised. The slow oxidation destroys the blue without being sufficiently rapid to redden it, and as the blue decreases in quantity, the yellow colour increases in power, and the leaf becomes yellow (yellow-green), the blue colouring matter left, and the partial decay of the cells, giving that sickly hue so prevalent in the yellow leaf. In some plants at this stage, the leaf falls to the ground, yellow. In others, the oxidation is continued to the red stage. The yellow colouring matter is not destroyed. If the red leaf is exposed to the fumes of sulphur, the red colour will disappear, and the yellow colour will be again seen. If a rich brown leaf be placed between the eye and a candle, and a powerful magnifier be placed between the candle and the leaf, so as to throw the concentrated rays of light on one spot of the leaf, the spot upon which the light falls will become a brilliant violet-red. A yellow-brown leaf, treated in a similar way, will give the yellow-green rays, but less brilliant. This sufficiently proves that brown is an effect produced by the partial opacity of the cells. Adoxa.

CHERRIES.

Under the tree the farmer said,
Smiling and shaking his wise old head,
"Cherries are ripe; but then, you know,
There's the Grass to cut and the Corn to hoe;
We can gather the Cherries any day,
But when the sun shines we must make our hay;
To-night, when the chores have all been done,
We'll muster the boys for fruit and fun."

Up in the tree a robin said,
Perking and cocking his saucy head,
"Cherries are ripe! and so, to-day,
We'll gather them while you make the hay:
For we are the boys with no Corn to hoe,
No cows to milk and no Grass to mow."
At night the farmer said, "Here's a trick!
These roguish robins have had their pick."

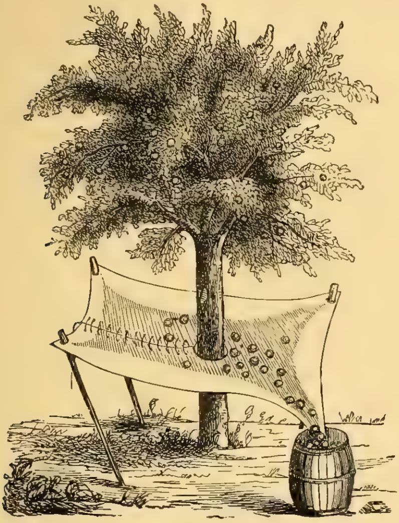
—St. Nicholas.

Lacquer Work.—According to native Japanese chroniclers, the art of lacquering was discovered in the year 724 A.D. By the end of the thirteenth century it had attained such perfection that a distinguished member of the craft is recorded to have then started a particular school of painting in lacquer. The material used in the work consists of the sap of the Uurushi tree, a plant cultivated partly for its sap and partly for the fruit, from which a vegetable wax is obtained. These trees attain their prime of life in the short space of five or six years, when the sap is drawn from them by an elaborate process requiring great judgment and experience, and in which the inhabitants of a particular district are celebrated for possessing a special skill. After the sap has been fully extracted during the four or five autumnal months, the tree is condemned and cut down. But its usefulness does not even then cease, for its wood is so light, and at the same time durable, as to be used very generally for making floats for fishing nets, and for many other purposes. Can any reader say what is the name of the tree in question?

THE FRUIT GARDEN.

GATHERING APPLES.

An American fruit-grower has invented an ingenious method of gathering Apples, by shaking the tree, and thus avoiding the long and tiresome process of hand-picking. His invention consists of a piece of cloth or canvas as large as the top of the tree for which it is to be used, having in the middle a hole large enough to enclose the trunk; a slit is then made from the hole to the edge of the cloth, and the sides hemmed, and a row of eyelet-holes made. When the trunk of the tree is enclosed in the hole, the slit is laced up. At each corner of the cloth smaller holes are made, and through three of these stakes are inserted, which are firmly driven into the ground. The fourth corner is attached to a barrel or basket; this barrel being lower than the stakes, the Apples drop into it by their own weight. As a fixture, when the fruit approaches maturity, windfalls will also escape injury.



An Apple Gatherer.

DYING OFF OF THE YOUNG WOOD OF PEACHES AND NECTARINES.

Every spring, just as their fruit should be setting, my Peaches and Nectarines lose all their last summer's shoots, which die off. I have studied De Breuil in vain as regards this failure. This year I shaded with tiffany, but to no purpose. The leaves bladder up, and then the shoots die. I thought it must be the climate; but the other day I was in a garden at Bath which has a similar south-east aspect, lying, too, in a dip like my own, and at much the same elevation above the sea. The Plums, Peaches, and Nectarines on the walls looked most thoroughly healthy, with not a bladdered or wrinkled leaf to be seen. I asked the gardener whether he had shaded his trees last spring? He said, "No." I enquired whether he had washed or syringed them with anything? He again answered, "No." I said, what do you do to keep them so fresh and hearty? He said, "Nothing." When I planted my trees about eleven years ago, I removed the existing soil, and planted according to the directions of Mr. Rivers, of Sawbridgeworth, from whom I got them. The cause of their doing badly is not root-disturbance, for they grow in a border which is not disturbed. The footpath is just outside it. If you can suggest the cause and its cure, you will great oblige. J. L. H. Southcomb.

Rose Ash Rectory, Southmolton, Devon.

[Without seeing the trees it is difficult to say what is the cause of the shoots dying back. Most likely the soil is at fault; perhaps it is wet or undrained; but it must be very wet to produce such effects. More likely it is unsuitable, and, perhaps, over-manured, and the wood does not ripen. A south-east aspect is not good for Peaches, because, after a spring frost, the sun shines on the foliage, and the sudden change from frost to hot sunshine is most destructive. I am convinced that shading is often used so as to do much more mischief than good. If tender trees were covered in winter injury would be often prevented and the trees would bloom later and perhaps escape spring frosts, and no one can doubt that coverings may be useful on frosty nights; but, where trees are thus protected, they are often covered for many hours during daylight, and the foliage and blooms are rendered so tender that they are injured by every change of temperature. The trees in question, if treated in this manner, and then exposed to a cold east wind, would be sure to suffer; whilst, on a south-west aspect, they might escape. Turf from a good sandy loam without any manure, except a few half-inch bones, is the best soil for Peaches. The collar of the tree should be rather above the soil than buried below the surface. After planting, avoid digging the border, as solid soil produces more fruit-bearing wood, and over-luxuriant growth is, in a measure, prevented.—J. Pearson.]

BLACKHEARTEDNESS IN ST. MICHAEL PINES.

Mr. Thomson (see p. 62) adheres to his statement respecting St Michael Pines cutting up black. I shall feel obliged to Mr. W. Thomson if he will state where, and on what authority, he gets his information as regards their being put in water. I have had some hundreds, and not a single one has ever been in water from the time they were packed for shipment to London. I have also cut open many, and sold an immense number, and, with one exception, they have all cut perfect in colour and flavour; in fact, so much so is this the case, that the general public prefer them to Pines of English growth. As regards the prices, Mr. Thomson must be well aware that, when a market is over-stocked, the only way to force a trade is by selling the goods at whatever price they will fetch; and, as he is a grower and salesman, he must be also aware that people do not eat Pines as they would an Apple or Pear, and that when the market is full and a fresh cargo arrives, as they do every day, consisting of from 600 to 1,000 Pines, they must be sold at once; they do not, like port wine, improve by keeping. I can assure Mr. Thomson that I have cut St. Michael Pines that have been completely covered with green mould, and yet they have been perfect in colour inside. Amongst a cargo of fruit there are sure to be a few that go specked and unsound, and those are the fruit which he has seen quoted at 2s. each.

Centre Row, Covent Garden. Alfred Garcia.

Is it really a fact that St. Michael Pines are imported with their stems in water? If so, their flavour would doubtless get deteriorated, but, in the case of the finest fruit, the usual practice, I believe, is to place the cut stem in a pot of moist soil or Moss. In this way blackheartedness never occurs in samples of the best fruit imported for the London markets; indeed, fruiterers have repeatedly told me that they preferred imported fruits to that of home-growth during winter, because it always proved sound. Mr. Taylor, one of the most experienced fruiterers in Covent Garden, speaks confidently as to the soundness and excellent quality of St. Michael Pines, and asserts, that out of thousands of them sold by him he only knows of a solitary instance in which blackheartedness occured. All the finest fruits—and of these only am I now speaking—are packed singly in separate cases to protect them from bruises and other external injuries. These consist, for the most part, of Smooth Cayennes, a variety largely grown here at home, and one which does not get black at the core so readily as the Montserrat or Black Jamaica. There are tons of common, and, in many cases, black-hearted, West Indian Pines now in the London market, selling at prices varying from a shilling to three shillings each, for preserving purposes; but these cannot be compared with the best Smooth Cayennes from St. Michael, which are sold at so many shillings per pound, just like the same fruit of home growth, to which they are indeed often preferred.

F. W. Burbidge.

HOW TO PROLONG THE SEASON OF CUTTING MELONS FROM THE SAME PLANTS.

When the Melon is grown in houses, and trained to wires like Vines, planting thickly, and treating them as follows, will be found to have several advantages. Fewer fruit are produced on a plant, but the fruit will be better in all respects. We grow them in a span-roofed house 25 feet long by 13 feet wide, with a passage down the centre, and a bed on either side, 3 feet 6 inches wide, about 14 inches deep, with a 3-inch flow and return pipe for bottom-heat, and six 4-inch pipes for top-heat. Although this amount of piping gives plenty of heat, we use for the earliest planting a quantity of sweet hot-bed material, previously prepared, put in the bottom of the bed, which raises the plants nearer to the glass, and also affords nourishment to them. This is put in about ten days before planting, in the form of a small ridge along the front to plant in, and sufficient to cover lightly the remainder of the bed. When the plants are ready, plant them not wider than 14 inches apart. Put a stake to each plant as the work proceeds, to support them to the first wire. When every other plant has got half-way up the house, or half the distance it is intended to train them, let this set be stopped, which will be the means of inducing them to throw out fruit-producing laterals. The fruit on these should be fertilised as they appear. Setting is a very easy matter when Melons are grown in light airy houses; we find that they set at all times of the day, and we continue to syringe them when in bloom, if the sun is bright. Where we stop these plants is about 4 feet from the bottom wire, and we generally take three fruit from each plant. The laterals are all taken off this set of plants up as far as the others extend, but not stopping them until they get to the second wire from the top, being careful not to injure any of the leaves on the main stem. We find that we can cut fruit sooner this way, can get a more regular crop all over the house, and, we sometimes think, better fruit. We have at present (April 10th) fruit as large as hen's eggs, on those that are stopped half way up the roof; while on those left to go to the top unstopped, none of the fruit is set, and will not be for several days. Melons are always associated with heavy loam. Here we cannot have such without going twelve miles for it, so that it is very little we can get. The natural soil is light and sandy; but by adding large quantities of deer and cow manure, we find it grows Melons well. In choosing a male bloom, let it be as large as possible and well expanded, when, if all other things are right, it will have a large amount of pollen, and be better in every way than a small one. In cutting out the laterals, let it be done with a sharp knife, so as not to injure the main stem in any way, as they are apt to canker sometimes when bruised.—"The Gardener."

Summer Pruning Nut Trees.—I have some Kentish Cobnut trees which are of some years standing, and which have been trained Tulip fashion. Having been neglected, they have grown very lanky; and, in the winter, I cut them down to within 3 feet of the ground. They have since shot out freely in all directions, and I now want to know how to treat them.—Jno. L. D., *Uxbridge.* [Carefully cut out, quite closely, all shoots thicker than a quill pen, particularly avoiding injury to the lower leaves on the shoots which are left on, and pinch in the latter to about a foot long. Moreover, remove all suckers and shoots that spring from near the base or centre of the tree.—W. B.]

Destroying Gooseberry Caterpillars.—I have adopted the following method of getting rid of this pest for twenty years, and never knew it to fail. To half-a-pound of white hellebore powder add about 12 quarts of water, and mix them well. Take the syringe, with the jet end on, draw it full of the water and powder mixed, and force it out into the bottom of the can, making the water and powder boil up, as it were; again draw the syringe full, whilst the liquid is in motion, and with your finger on the end of the jet, thoroughly damp over every part of the tree affected. If the pest has made headway, a second application is sometimes necessary. It is best to apply the mixture on a quiet, still night. About a week after, damp all the trees with clean water, should the weather be dry. Let them remain for half an hour or so, to loosen the powder on the leaves and fruit, and then give them a brisk syringing, which will leave them quite free from both caterpillars and powder.—James Smith, *Waterdale, St. Helens.*

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Early Orleans Plum.—Mr. Gilbert states (see p. 6) that this Plum is a seedling raised by my father. Does he mean the Early Prolific? The Early Orleans is not a seedling raised here.—J. Francis Rivers, *Sawbridgeworth.*

Fruit Trees by Roadsides.—The French and Belgian people protest against the action of the local authorities, who are planting timber trees upon the roadsides, desiring that fruit trees be planted instead, as is done with so much profit in Germany and Switzerland.

Hovey's Seedling Strawberrv.—At a great American show of Strawberries held on the 2nd of this month, Hovey's Seedling, a variety some forty years before the public, carried off the first prize, although 116 dishes were shown, including most of the new kinds introduced since that date.—H. C. M.

Teaching Fruit Culture.—In Italy, schools of instruction for the cultivation of fruit trees, but especially of Apples, have been established by the Government. It has been ordered that the soldiers shall attend courses of lectures on these and like subjects for at least two years before their discharge.

Underhill's Sir Harry Strawberry.—Mr. Charles Turner, of Slough, whose knowledge of Strawberries is extensive, informs me that the stock in the possession of Messrs. Steel, of Richmond, to which I recently drew attention, is not Sir Harry, but a remarkably fine "strain" of Sir Joseph Paxton. Mr. Turner adds that the old Sir Harry Strawberry has entirely died out. Sir Joseph Paxton he considers a grand variety, which in the hands of Messrs. Steel attains perfection.—A. Dean, *Bedfont.*

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Roses.—The method of growing Roses budded on Briars and Manetti stocks is so general that few amateurs ever think of attempting to cultivate them on their own roots; yet there is no question that, for general decorative purposes, they are much better and more effective that when budded either as standards or dwarfs. We often hear it said that if budded low, so that in planting the point of union with the stock can be placed a little below the surface of the soil, the Rose will throw out roots, and ultimately become thoroughly established on its own bottom; yet considerable annoyance is thus caused by the stock continually throwing up suckers, which, even if removed as soon as they appear above ground, are a constant source of weakness, inasmuch as they steal the strength which should go to support the head of the plant. On the other hand, if it was from the first on its own roots, every shoot thrown up from the base would be a decided gain. It is possible that for the production of flowers for exhibition the budding system may be best; but, for one who grows Roses for exhibition a hundred grow them for the pleasure they derive in cultivating and possessing them. On light soils, not well adapted to Rose growing, many varieties will do well on their own roots, where it is next to impossible to get any to grow at all on the stocks ordinarily used. Roses are anything but difficult to strike, provided the operation is carried out at the right season. There is no better time than the present, after the principal blooming is over and the wood has had sufficient time to get to a half-ripened state, which it is necessary it should, to ensure success by the method under consideration. After flowering the shoots throw out a second growth from the eyes immediately below where the blooms were produced, but these are at present too soft for the purpose required; it is from the lower portion of the shoots, where the wood is firmer and further matured, but not too hard, that the cuttings should be made; unless, in the case of varieties that are very short-jointed, two joints are enough for each cutting. In preparing them cut clean just below a joint, leaving the eye at the joint above with its leaf attached to form the plant. Use 6-inch pots, sufficiently drained, and filled to within an inch-and-a-half of the rim with sifted loam, to which has been added a little well-rotted leaf-soil, and enough sand to keep the whole from becoming too close, otherwise the roots will get broken when the cuttings are separated for potting singly after they are struck. Lay an inch of clean sand on the surface of the pots, and put six or eight cuttings in each; then give a good watering, and place them as close as they will stand in a cold frame facing northward in an open situation. Put 2 or 3 inches of ashes under the pots to exclude worms, and keep the lights closed day and night. If the frame is placed with its back to the sun, as advised, little shade will be required, unless the weather is very bright, the object being to get a genial warmth by the use of sunheat. Sprinkle them overhead every afternoon, so as to keep the soil quite moist. In the course of three weeks the cuttings will be callused at the base, and ready for throwing out roots, when they should be plunged in a gentle hot-bed prepared to receive them. They will require a little air during the day, and still keep the soil moist. If all goes on well, they will root quickly, scarcely one in a dozen missing. The essential point is to have them well callused in the cold frame before submitting them to heat. They will push into growth as soon as they form roots; then place them singly in 4-inch pots, and keep them in the frame with a gentle warmth, until they get established, gradually giving more air, so as to harden them off before winter, during which let them, if possible, be in a house or pit, where a night temperature of about 40° is maintained. Here they will keep slightly moving until spring, when they may be planted out a foot apart on a bed of well-prepared rich soil. Attend to them with water through the following summer, and in the autumn they will make good plants for planting out where they are to remain. Amateurs will do well not to attempt propagating any but good, strong-growing varieties, that possess a vigorous constitution. However beautiful the individual flowers of weak, delicate-growing Roses may be, for general purposes they are worthless, and, as there are such numbers of really good kinds, representing almost all colours, there is no necessity to include what are termed "miffy" growers.

Sowing Cabbage, Lettuce, &c.—It is advisable to put in a little more Cabbage seed now; for, should the first sown fail, this will take its place, although the produce will be later than the difference in the time of sowing would lead one to suppose. A sowing of hardy green Lettuce should at once be made. These will come in after the summer varieties are over. A little of the Tom Thumb variety may also be put in, as this sort is a quick grower, and will be fit for use through the autumn. Old Strawberry beds that are intended to be done away with should at once be dug over, burying the tops as the work progresses, and digging in some manure. Ground of this kind is suitable for a crop of Turnips, which will be cleared off, so as to admit of its being cropped with something else in the spring—land that has been planted with Strawberries being in the best condition for the growth of any kind of vegetables. Run the hoe over all vacant ground, such as may exist among bush fruits. It often happens that care is taken early in the season to keep down weeds during the time that they increase most rapidly, and towards autumn, when but few make their appearance, they are not so well looked after. This is an omission that causes much after labour, as a very few weeds left to seed entail a continual repetition of the work.

Raspberries.—The old canes will now have done bearing, therefore they may be cut out at once, and their removal will be of much benefit to the young ones for next year's fruiting. At the same time, any superfluous suckers that will yet, from time to time, make their appearance should be cut away. Do not leave more canes than will ultimately be required for bearing. If the young shoots are very large, they sometimes get broken off at the bottom by the wind when in an exposed situation; where this is the case secure them loosely to the supports, whether wires or stakes, but do not tie them up so closely as to injure the leaves, or not allow sufficient air and light to get amongst them.

Peaches and Nectarines.—Continue to remove such shoots as will not be required for next year's bearing. Lay in those that are to remain, but do not over-crowd—the wood and the leaves should have full exposure to the light. Do not cease removing the leaves, wholly or in part, that prevent the fruit receiving the full benefit of the sun, for, by this means only can it assume the colour that adds so much to its appearance. If the crop has not been sufficiently thinned it will now be apparent, and even yet, although late, it is better to remove a portion, as what remains will naturally by this means, attain a larger size, and the trees be left after the crop is ripe in a more satisfactory state for another year. Continue the use of the syringe regularly. Trees, with clean healthy foliage and free from insects, will finish off fruit that is superior in every respect to those the leaves of which are in a bad condition.

Flower Garden.—Beds of Pelargoniums should be gone over every week to remove the dead flowers, not allowing any to seed; for, if these are allowed to remain, they interfere with the growth and successional flowering. The same holds good with Lobelias. Plants that were large and strong when put out, are very liable to become exhausted, and look shabby before the end of the season, if the seeds are not removed, in which case it spoils the effect of the subjects they are associated with. An application of manure-water once a week will assist to prolong their flowering. During a season, such as the present, when bedding plants have been so late in making a good display, everything possible should be done to enable them to hold out to the last; for, with a favourable autumn, they may yet make up for their deficiency in this respect in the beginning of the summer. Dahlias are now growing apace, and must be well supported with sticks and ties—mulching the bed over with a couple of inches of rotten manure. As herbaceous plants die off, remove the tops of the early-flowering plants. Give all autumn-blooming subjects sufficient supports to keep them from being blown about.

Pinks, Carnations, and Pelargoniums.—Pinks should now be propagated by pipings made from the young shoots, with about three joints; insert them a couple of inches apart under hand-lights, in well prepared sandy soil. Wireworms are most destructive to these plants, and the soil, previous to putting in the pipings, should be passed through the hand, so that if any exist they may be destroyed. Carnations should be increased by layering, as they do not succeed like Pinks from pipings, unless they are put in early in the season, whilst the shoots or grass, as in florist phraseology it is generally called, is young, and not too hard. The earliest flowered Pelargoniums will, by this time, have sufficiently ripened their wood to be fit for cutting down. This may be known by the shoots, for a considerable distance upwards from the point where they spring, being hard and brown. The necessity for having them in this condition is, that if the wood, where they are cut back to, is in a green state they do not break well, only pushing a few of the strongest eyes. If the plants are as large as desired, shorten the shoots to within two or three eyes of where they were headed down to last year; keep them in a pit or frame, and do not give more water than a sprinkling overhead with the syringe until they have commenced growing. Such as have flowered late should be placed in the open air for a short time to mature their growth before being cut back.

Roses.

Budding may now be accomplished as rapidly as possible, for the stocks will be found to be in good condition for the operation at the present time. Care should be taken in the selection of the buds so as to obtain those that are plump and firm; if they are not prominent it will not be advisable to bud them. In such a wet season mildew will be found to show itself in many places after the heavy rains we have experienced, and this, as well as red fungus, must be stopped. As soon as there is a change of weather syringe all Roses that are mildewed with soot and sulphur water. The red fungus shows itself on the back of the leaf, and many varieties are much more subject to it than others. I have generally stopped it with soot and soap suds. If this is not looked to very soon the autumn Roses will be utterly ruined, for the buds get destroyed and never afterwards open. The late storms have cleared away all aphis, but have greatly damaged the summer flowers of Roses, and by looking well after the perpetual flowering varieties, by keeping them clean and encouraging the autumn growth, we may have a fine display this autumn to repay us for the loss of our summer flowers. Roses have not been so fine out of doors in many localities where the ground is cold and constantly wet, but on gravelly and well-drained land they will be found to be much finer than usual, as a wet season suits them best.—H. G.

The Flower Garden and Pleasure Ground.

As soon as the flowering of deciduous shrubs, such as Spiræas, Deutzias, Lilacs, and Guelder Roses, is over, they should be cut in, and this should be done at once, in order to give sufficient time for the ripening of the young shoots, which will be developed as soon as this operation has been performed. If plants of this description are allowed to extend themselves without restriction, they will soon assume a very straggling habit and appearance, and will also overhang, and throw an injurious shade upon evergreens and other choice and delicate species which may be growing near them. Where shrubberries are composed of various species of evergreen and deciduous plants—and this is generally the case—the beauty of such plantations depends, in a great measure, upon the variety of leafage presented, and upon the duration of their flowering season. Great care is necessary in arranging or associating evergreen and deciduous species so as to avoid the appearance of blanks during winter, when deciduous plants will, of course, be bare of leaves. Each plant, too, whether evergreen or deciduous, should be a specimen of its species, and should not by any means have its outline broken, or be in any way interfered with by surrounding plants. Where, however, shrubs of one kind are planted in clumps, the case is different; and very slight interference will, in their case, be necessary. In commencing to propagate bedding plants for next season, the varieties which are known to be the most difficult to increase, or of which the cuttings require the longest time to root, should be taken in hand first. Amongst these are the different kinds of variegated Pelargoniums, and these, on account of the wet weather we have recently experienced, will generally be found in a sufficiently advanced state to furnish an abundance of cuttings. More particularly will this be the case if a few plants of each sort were planted out in the reserve garden, for the express purpose of furnishing cuttings, and of obviating the necessity of having recourse to the flower beds for this purpose. When the cuttings of these plants have been properly prepared, they should be placed in 4-inch pots filled with light turfy soil, to which silver sand and finely-sifted leaf-soil should be added. Four cuttings should be placed in each pot close to its sides, in holes made with the finger or a small stick. Into each hole a small quantity of silver sand should be poured, and on this the cutting should be placed, the soil being pressed firmly to it. When this has been done, place the pots on cinder ashes in the open air and fully exposed to the sun, and water freely with a fine-rosed watering-pot when required. Another plan, by which cuttings will strike root with equal facility, is to prick them into a border of light soil, using a little sand, on which to set the end of the cuttings, the same as is done when pots are used. If this can be attended to now the cuttings will be well rooted by the middle or end of September, and quite ready to be potted into 4-inch pots, in which they should be kept during the ensuing winter. All the stronger-growing green-leaved kinds may, of course, be increased in a similar manner; larger pots, however, should be used for the purpose, and less care will, in their case, be necessary. Cuttings of the various other kinds of bedding plants, such as Verbenas, Petunias, Fuchsias, Lobelias, Ageratums, Iresines, Coleuses, Alternantheras, &c., may all be inserted, as soon as possible, in 6 or 8-inch pots, well drained, and filled to within 2 or 3 inches of the rim with light soil, the remaining portion of the pots being filled up with a mixture of silver sand and finely-sifted leaf soil, in which the cuttings are to be inserted. It very frequently happens that Verbenas and Iresines are much infested by aphis; and, when this is found to be the case, the cuttings must be freed from them before they are inserted, as this will be difficult to accomplish after. Wherever there are signs of insects upon the cuttings, let them be dipped in tolerably strong tobacco-water, and allowed to lie in a wet state for half an hour or more before they are inserted in the store pots. After the cuttings are in their pots, they should be well watered with a fine-rosed watering-pot, to settle the soil about them; and the pots should then be placed upon ashes in a frame, which should be kept quite close, and shaded slightly during intense sunshine. The cuttings should be well sprinkled every evening, and in about a fortnight they will have taken root, when they should be placed in the open air, there to remain until there are indications of frost, when they must, of course, be placed in their winter quarters. This exposure to the open air for several weeks has a most beneficial effect upon the health of the cuttings, giving them an amount of vigour and hardiness which enables them to stand the cold of the approaching winter. As regards the cuttings of the more tender species of bedding plants, such as the Alternantheras and Coleuses, they must not be allowed to remain too long in the open air, as a very slight degree of frost will prove fatal to them; and it will also be necessary to winter such plants in a temperature much higher than that required for Pelargoniums or Verbenas.—P. Grieve, *Culford, Bury St. Edmunds.*

Indoor Fruit Department.

Vines.—Young Vines may still be planted at the present time, and may be expected to make more progress in their permanent quarters than if kept in pots until next spring. If the leading shoot has been stopped, as most of them have by this time, all the side shoots that appear likely to grow should be allowed to do so. The chief advantage in planting so late in the season is, that the roots establish themselves in the fresh soil, and they grow away much more freely when started the following season than when newly planted at that time. Shoots, which were permitted to grow on Vines after the fruit was cut should now be cut back to the point whence they started, so that the air may circulate freely, and ripen the main wood. Where it is seen that late Grapes are likely to be over-crowded, the smallest of the berries should be thinned out of each bunch, taking them out of the centre, where the berries are most liable to damp. The largest shoulders on Alicante bunches may be tied up with a piece of matting, but should not be taken up any further than is sufficient to leave the berries clear of each other. Syrian and White Nice often produce large shoulders, which should be tied up in a similar manner. Where the symmetry of a bunch is spoiled by a shoulder, as many are, take it off altogether. Early pot Vines do not need much water now; and any that are still under shade of any kind must be removed at once to the most exposed place available. Growing under shade may answer to a certain extent, but Grapes must never be ripened under shade. Late Vines in pots are still growing freely, and should be given an abundance of well-diluted manure-water three times a week.

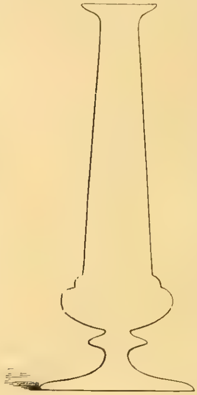
Pines.—Plants intended to yield a supply in November and later, should be showing fruit now, and the bottom-heat applied to these should be kept at 85°. If the plants have been kept somewhat dry previously, give the roots a thorough watering as soon as the fruit is seen. Black Jamaica is one of the best late varieties. Its fruit is finely flavoured in winter, and at all other times. It swells, colours, and ripens perfectly, without sunshine; but the comparatively small size of its fruit is not in its favour, and is, perhaps, the reason why it is not more extensively cultivated. Keep the earliest-potted Queens, successional Smooth Cayennes, and other varieties, well supplied with water, and use a little guano on alternate days. The surface of the plunging material of all kinds of Pines should be kept moist on hot days. Succession plants should also be allowed abundance of atmospheric moisture whenever the weather is warm and bright, and if sun heat is skilfully economised there will be little use for fire heat, except during dull weather.—J. Muir.

Hardy Fruit.

Fruit trees of all kinds have this season made free growth, and the great difficulty will now be to get such growth fully ripened, more especially if the weather continues much longer cold, wet, and sunless. As previously directed, let all superfluous wood be removed, that every branch and bud may be exposed to the action of light and air, and this will, in some measure, make up for the loss of sunshine. Apricots being apt to ripen on one side only, unless fully exposed, should have the foliage drawn aside or removed altogether; this latter practice is not, however, to be recommended, and should only be resorted to when the fruit cannot be otherwise exposed. Wasps are appearing in some localities in large numbers, and due vigilance must be exercised to keep them off the fruit, the Apricot being invariably that first attacked. The best and, I believe, the only remedy, is to seek out their nests and destroy them. Squirrels and blackbirds are also partial to Apricots, and are sure to take the best fruit; shooting—our remedy—is far too good for such dastardly conduct. The excessive rains which we have had are causing the fruit to crack. Plums and Pears here are also cracked, an evil for which there is virtually no remedy, except a change to hot and dry weather. Occasionally examine the protecting material on Currants and Gooseberries, which sometimes get destroyed by mice. Should fine weather set in temporarily remove such coverings, and allow the fruit to get thoroughly dry, as the immense rainfall (5½ inches here this month) must have injured fruit greatly. These remarks, of course, only apply to fruit that is intended to be kept for some time; all other bush fruits should be gathered as weather permits.—W. Wildsmith, *Heckfield.*

FLOWER VASE FOR A MANTEL-PIECE.

Herewith I send you a sectional sketch of a vase which I found in a village shop in Kent, and of which, being near the sea, I bought a couple to use as aquaria for minute marine objects. They answered this purpose exceedingly well; and, upon subsequently trying their capabilities as receptacles for flowers, I found them equally useful in that way, so much so that I secured a second pair; and I can assure you that four of them on a mantel-piece, with a mirror behind them, form a very pretty decoration. At the present moment they contain wild flowers only, such as Saintfoin, Chicory, Yarrow, small Poppies, yellow Trefoil, Mallow, yellow and white Galiums, Oats, Canary, and other Grasses, while, for foliage, a small-leaved Umbellifer answers most effectively. The vases are 8 inches high, 3 inches in diameter at the foot, and scarcely 2 inches across the top. They would also prove very useful round the centre decoration of a dinner-table, or placed near the four corners. Flowers, I need scarcely say, are beautiful and interesting under all circumstances; but in our rooms they may be said to acquire additional value, and any simple and inexpensive vase in which they can be shown off to advantage, such as that I have just described, cannot fail, I think, to be appreciated. W. T. P.



Flower Vase for Mantel-piece; one-third full size.

JAPANESE GARDEN PLANTS.

There is no country so rich in desirable plants which are suited to our climate as Japan—witness, the vast number of shrubs and flowers which are distinguished as japonica—and there is none where artificial gardening is carried universally to such lengths. The beautiful Lilium auratum is grown as a vegetable in Japan, the bulbs being eaten as we eat the Jerusalem Artichoke; the varieties of Lilies which flourish in the country are endless. The Chrysanthemum is the national flower; it grows to a gigantic size, and is pickled in country houses. A conventional representation of it is the crest of the Mikado, and the flower and stalk both appear on their new coinage, where it divides the honour with the Paulownia imperialis, or Kiri, which, on account of the distinctness of its annual rings, was formerly used for measuring periods, being planted at the birth of a prince and cut down at his death, when the number of rings gave the years of his age. Its wood is distinguished by its extreme dryness, a valuable property in a climate that is damp for a great part of the year, and it is therefore used for sword-scabbards and boxes for the preservation of articles liable to rust. The Sakura or double-flowering Cherry (Prunus pseudo-cerasus) is cultivated everywhere for the beauty of its flowers. The fruit-bearing Cherry is almost unknown, and one cannot give a Japanese a greater treat than a dish of fine Cherries. No one who has examined Japanese porcelain, lacquer, stuffs, or coloured prints, can have failed to observe what an important part the double-flowering Cherry (all flowers and no leaves) and the dying Maple foliage play in their landscapes and decorations. The early spring, when the country is ablaze with the blossoms of the double-flowering Cherry, is a time for universal excursions and pic-nics. With their portable fire-boxes, tobacco receptacles, spirit-cases, and pic-nic baskets, the whole family goes afield and makes a day of it. The Japanese are as earnest after botanical novelties as ourselves. It seems strange to them that we think so much of a table vegetable like the Lilium auratum, but an accomplished Japanese in the interior of the country, who was taking an Englishman over his house and showing him priceless old china and lacquer, sword-blades and ivory carvings, finally exhibited as a great rarity an ordinary soda-water bottle (glass is uncommon in Japan); and bringing him into his garden, which was a little paradise of fantastically-trained trees, flowers, rockeries, and cascades, expected supreme admiration for a plant of curly Kale and a common Daisy—an ever-blooming Chrysanthemum, as he called it—which were languishing side by side in flower-pots. J. O'N.

Gunnera scabra for the Wild Garden.—How is it that Gunnera scabra is not more grown? I am certain that anyone who sees the magnificent specimen at the top of the herbaceous department at Kew will not rest satisfied without a plant or two of it. My plants are only two years old, but they are growing very rapidly (as are also G. manicata, with nearly circular leaves) in round beds, composed of leaf mould, and shaded by tall trees, at the entrance to the wild garden.—Oxon.

Early blooming of Renanthera coccinea.—Those intending to bloom this beautiful Orchid during the early part of the year, must now remove it to a Vinery where the fruit is just beginning to ripen, and for this a Muscat-house is to be preferred, where it will get plenty of air and a dry heat. The crown of the plant should be placed close to the glass amongst the Vine leaves, and if it can be placed tolerably near a rib to afford a little shade from the mid-day sun all the better. No more water than what will prevent it from shrivelling should be given, and after October comes in give none at all. The plant should not be syringed overhead at any time; a Vinery is the best place for it throughout the season; place a good Hazel or Crab-tree stake in the pot; tie the plant to it, and, as the roots grow rapidly, regularly tie them to the stake, and cover them with Sphagnum or Cocoa-nut fibre. Under this treatment it has shown bloom with me in November, and, growing in a cool temperature, opened its blossoms at the end of April. Having previously placed some Sphagnum round, just below the flower-spike, for it to root into, I cut it off below the Sphagnum and put it into a pot; the old plant sent out a fresh leader, and after making 13 inches of growth, showed bloom again in the winter months. Its distinct colour, and the length of its blooming season render it worthy of every consideration.—James Smith, *Waterdale, St. Helens.*

The Pelargonium Society.—At the annual meeting of this Society, which took place on the 22nd inst., the treasurer, Mr. Denny, was able to report a satisfactory state of the finances, a balance of £20 8s. 4d. remaining after paying the prizes awarded at the exhibition on the previous day, and all the working expenses. The sum paid out in prizes was £40. A hope was expressed that the Society, now that it had become better known, might draw around it more abundant support, so that encouragement might be extended to other classes of Pelargoniums, besides the zonals, which was the class specially in view when the Society was originally founded. It was also thought that the inducements offered by the Society might set hybridisers to work, and so be the means of obtaining new types of this useful decorative family. The chairman, treasurer, honorary secretary, and committee were re-elected, the latter body being strengthened by the addition of the names of Mr. Andrew Henderson, Mr. G. T. Rollisson, Mr. B. S. Williams, and Mr. J. F. West. At a dinner, which took place after the business of the meeting was over, a most interesting discussion took place as to the influence of the pollen in cross-breeding, and on other matters connected with the history and improvement of the Pelargonium. Mr. Pearson suggested that the Society should endeavour to find and to fix satisfactory and intelligible names for the different groups of Pelargoniums, instead of the inapplicable ones—show, fancy, tricolor, zonal, &c.—now in common use. In reference to the origin of the Fancy Pelargonium, Mr. Cooling stated his belief that the first variety of this type, which must have been raised forty years ago, was one called Willoughbyanum, and that it had been bred from the ordinary varieties of that period crossed with such sorts as Moore's Victory, Fair Helen, &c., Willoughbyanum being one of the seedlings thus produced. Mr. Williams urged that the objects of the Society were too restricted, and that other flowers should be included; but this objection was met by the argument that to extend the scope of operation would require more funds, and would create a divided interest, whereas it was better for the Society to concentrate its present efforts on the flower which had been selected, and that other elements would be found in the show with which that of this Society would always be associated—that of the Royal Horticultural Society for example, as was the case this year.

The Moss Campions (Silene).—These, though coming from the pure air of mountains, will, as a rule, thrive perfectly in the open border. They will require a well-drained soil and a position fully exposed to the sun, with plenty of water in summer. I generally bury a few large flints about them when newly planted. S. alpestris and S. Schafta (the former with glistening white, and the latter with neat rose-coloured flowers) will thrive without any attention. We have also (doing well in open borders) S. acaulis, a firm mossy plant with crimson flowers, S. Elizabethæ, a rare species from the Tyrol, with large rose and white flowers, S. Pumilio, very like S. acaulis in general appearance, but with much larger flowers.—Oxon.

Rose Aimee Vibert.—This Rose is not so well known as it deserves to be, and is certainly one of the most vigorous, hardy, and floriferous Roses we have. Anyone possessing a wall that he is desirous of covering, or a place to raise a pole, should grow this charming Rose. One side of my house (a tolerably large one) is covered with its numerous pure white trusses, with from ten to twenty blooms in each truss. It will grow nearly everywhere. I took up the paving stones in front of my house for about a foot square, and planted it with very little preparation; notwithstanding this it is now one of the most lovely objects possible. The last winter was rather hard on it, and it had to be cut in in the spring, to which, in a measure, its present extraordinary blooming qualities are, perhaps, due. It will throw up shoots from 12 to 20 feet in a season. It will thus reach the tops of pillars in a season, and throw out scores of blooming branches the following spring.—Thos. Williams, *Bath Lodge, Ormskirk.*

Peas for Succession Sown at the Same Time.—On the 13th of March I sowed three rows of Fortyfold, three rows of Veitch's Perfection, and two rows of Ne Plus Ultra Peas. On the 1st of July I began to gather from the Fortyfold; on the 12th from Ne Plus Ultra; and on the 21st from Veitch's Perfection. The two first are now nearly finished, but Veitch's will last ten days or a fortnight longer. All of them are first-rate sorts, both as regards crop and quality. Fortyfold grows 6 feet, Ne Plus Ultra 7 feet, and Veitch's Perfection 4 feet 6 inches in height, all being higher than usual owing to so much rain. For staking tall Peas, I prefer the tops of fast grown young Oaks, as other stakes are apt to break down under wind and rain.—J. Garland, *Killerton, Exeter.*

Mr. Earley's High-class Kitchen Gardening.—I think Mr. Hobday has been too kind to Mr. Earley's book in the last number of The Garden. It may be "high-class" gardening, but there are a good many errors, both of omission and commission in it. Some of these are not easily excused in a self-styled "high class" book. Mr. Earley says the Potato Onion is the same as the Welsh Onion (see p. 152); they are very different things, as most people know. One is also astonished to find that the artificial fertilising of the Cucumber, for which minute instructions are given, is "high class" practice. I have grown Cucumbers, summer and winter, for more than twenty years, and never had occasion to fertilise one yet, except for seed—the fewer seeds in Cucumbers used for salad the better. Different continental names of vegetables are given at length, while such matters as the formation and arrangement of the kitchen garden, rotation of crops, &c., are omitted, or hardly noticed. The same may be said of insect plagues. We are cautioned about the wire-worm only, as being the worst enemy of the Carrot, while it is well known that it is the Carrot-fly grub which does the mischief generally. Peas are recommended for cultivation that are not in commerce. "Felicitous" and "non-felicitous" are terms applied to soils; according to Walker, these mean "happy" and "unhappy," but according to Mr. Earley they mean clay or loam, or light or heavy soil. One would not notice these matters so much were it not for the pretentious title of the book. The author is a good kitchen gardener, and ought to have done better.—A Modern Kitchen Gardener.

Shading for a Camellia-house.—I have a Camellia-house awkward in shape and difficult to shade. I should, therefore, be much obliged if some of your readers could give me any information respecting a kind of glass that would do away with the necessity of shading.—Solo.

Geranium armenum.—This showy and handsome species has again been most strikingly beautiful with me during the last few weeks. It is to my mind one of the best plants which Messrs. Backhouse have yet sent out. Its bushy compact growth and long-continued inflorescence, consisting of great magenta-coloured blooms make it one of the most valuable plants that can be grown.—H. Harpur Crewe, *Drayton-Beauchamp Rectory, Tring.*

Sweet Peas Best Sown in Autumn.—The advantage of sowing Sweet Peas in autumn, so as to get an early bloom the following year is not known well enough. I have every year vigorous hedge-like lines of Sweet Peas—splendid in their profusion of bloom—and this I owe to sowing late in summer, or early in autumn, instead of in spring. Sweet Peas are quite hardy and stand with me any winter, no matter how long or severe.—W. R. S.

OBITUARY.

JOHN STANDISH.

We announce with regret the death of this able and well-known nurseryman, which took place at his residence at Ascot on Saturday last. Mr. Standish was born in Yorkshire on the 25th of March, 1814, and at the age of twelve removed with his parents to Calne, in Wiltshire, where his father held an appointment at Bowood under the Marquis of Lansdowne. It was there that he gained his first instruction in gardening. After his apprenticeship was finished, he went to Bagshot Park, where Mr. Toward was then gardener to the Duchess of Gloucester, and under him acted as foreman till he commenced business for himself as a nurseryman at Bagshot. Mr. Standish was an assiduous hybridiser, and one of his first achievements in that way was Fuchsia Standishii, a fine dark variety, the result of crossing F. fulgens with F. globosa. This is stated to have been in 1839; and soon after that he raised Calceolaria Standishii, one of the first of the prettily spotted herbaceous kinds. Many other genera of plants formed the subjects of Mr. Standish's experiments, and notably the Rhododendron, of which he raised many beautiful varieties. It was to Mr. Standish, then in partnership with Mr. Noble, that Mr. Fortune entrusted the raising, propagation, and distribution of his Japanese and Chinese plants on his second expedition to the East, and it was through him that some of the most familiar trees and plants of our gardens were first distributed. In 1862 Mr. Standish removed from Bagshot to Ascot, where he formed an entirely new nursery on a more extensive scale.

John Standish was one of those men, not multitudinous, whom we seem to know and esteem when first we meet them. Like a Bank of England note, he was payable at sight. Tall and broad, in his prime, there was a manliness in his presence, a pleasant kindliness in his face, and a heartiness and geniality in his manner, which made one wish at once to count him as a friend. And there was always that enthusiasm and hopefulness in his words which proved him to be a true florist—one whom no disappointments could ever dismay, and no amount of success could quite satisfy. If you criticised one of his seedlings, he acknowledged its faults cheerfully, because he was confident in his power to expel them; and, if you praised, "Well, yes it was pretty, but it was nothing to that which was to follow." Successful as he was with flower and fruit, his Fuchsias, his Roses, his Rhododendrons, and his Grapes, the past and the present were with him as nothing compared with those visions of beauty, which his brave ambition saw. It gave one new courage and a bright hope to hear John Standish talk of what we gardeners might do, and what we gardeners ought to do, with all our modern improvements in combination with the experience of the past. He was liberal, open, both as to hand and heart, a "generous Briton"—not in public-house phraseology, though he was given to hospitality, and happily social, within the limits of becoming mirth, but in the true sense of the term. He did not grudge information to those who asked from a love of the beautiful, and not for a love of gain. He made no evasion or reservation to those who were gardeners at heart, as he was. With his advice, with his plants, in any way he could, he would help beginners. When I happened to mention my intention of erecting a Vinery—"If you will buy your wood and glass," said he, "you shall have my mason and carpenter to work them, and then I'll send you some Vines." I most thankfully accepted the first proposal, and, thanks to him and his two clever artisans, who came at once from Bagshot to Caunton, no near distance, I have had for many years, during ten months out of the twelve, an abundant supply of Grapes. And still there blooms in my garden, and will bloom so long as that garden is mine, the Rose which he imported from France, and to which, believing it to be of superior excellence, and with a fraternal kindness, which he knew would please me, he gave the name of Reynolds Hole. "Old Standish" (as we who liked him best used to call him) did not live to be old in years, but the memory of a true florist and a true friend will long survive him in many a pleasant garden, and in many a faithful heart. Samuel Reynolds Hole.

Caunton Manor.

A Garden Contractor sent to Gaol.—Vice-Chancellor Hall had before him the other day the case of "Allen *v.* Martin." The plaintiff is a trustee of the will of Lord Southampton, and in the latter end of last year he entered into a contract with the defendant Martin, under which the latter undertook to raise the south enclosure of Euston Square, and to lay out that piece of ground as a garden. The only thing Martin did, however, was to raise the level of the enclosure by means of rubbish which he put there, the smell from which made the surrounding dwellings almost uninhabitable. The defendant had been warned by an injunction previously granted against him to do what he had undertaken to do by his contract; but he did not do it, and now a motion was made to commit him for contempt of court, the contempt being his neglect to obey the injunction. The vice-chancellor granted an order to commit the defendant to gaol.

The Future of the Royal Horticultural Society.—The Prince of Wales presided the other day, at Marlborough House, over a meeting of her Majesty's Commissioners for the Exhibition of 1851. There were present—The Duke of Buccleuch, the Marquis of Lansdowne, Lord Spencer, Lord Carnavon, Lord Granville, Lord Aberdare, Sir Stafford Northcote, Sir Bartle Frere, Sir William Knoylles, Mr. Playfair, Sir William Anderson, Sir Francis Sandford, Mr. Edgar Bowring, Mr. John Evans, Mr. Field Gibson, General Ponsonby, General Probyn, and Major-General Scott, secretary. Sir Henry Thring attended the meeting at the request of the president. The Commissioners considered a proposal from the Council of the Royal Horticultural Society to the following effect:—"1. That the society should raise its annual income from subscriptions to £10,000, an amount that would provide adequately for the promotion of the science and the encouragement of the practice of horticulture, and for the efficient maintenence of the gardens. 2. That the Commissioners should waive the imminent forfeiture of the lease for non-payment of rent for a sufficient period to give the society an opportunity of re-establishing itself." The Commissioners accepted this proposal as the basis of an arrangement.

The New Forest.—The Report of the Select Committee of the House of Commons appointed to enquire into and report on the present condition of affairs in the New Forest and into the operation of the Deer Removal Act, 1851, and particularly into the exercise and effect of the powers of enclosure given by that Act, has been published as a Parliamentary paper, No. 341. The resolutions to which the Committee have come, and which they have agreed to report to the House of Commons, are as follows:—"That the New Forest shall remain open and unenclosed, except to the extent to which it is expedient to maintain the existing right of the Crown to plant trees. That the ancient ornamental woods and trees shall be carefully preserved, and the character of the scenery shall be maintained. The powers of enclosure conferred by statute shall be exercised only on that area which has hitherto been taken in at various times, and been either kept or thrown out under the Acts 9 and 10 William III., c. 36, 48 George III., c. 72, and the Deer Removal Act, 1851. That the Crown should retain the power of keeping 16,000 acres of growing timber and trees planted under the Acts of William III. and 1851 at all times under enclosure, and the Crown be entitled to enclose and throw out at will any portion of the area over which the powers of planting are to be exercised, with a view to its unrestricted use in such manner as may be deemed expedient for the most profitable growth of timber and trees; but that the rolling power over the open portion of the forest not now planted or enclosed under the Acts William III. or 1851 should cease."

Spigelia marilandica.—This is a beautiful and brilliant perennial in a moist peat border, with handsome flowers, red outside, and yellow within. It is very seldom seen, and it is very impatient of transplanting. It grows about a foot high.—Oxon.

Cypripedium Parishii at Knowsley.—One of our plants of this Lady's-slipper has produced a spike with eight flowers on it, six of which were open when the spike was cut a few weeks ago. This is, I believe, one more than the largest number of flowers hitherto known to have been borne by this plant at one time.—F. H.

Sander's St. Albans All Heart Lettuce.—This new Lettuce well deserves its name, for it is nearly all heart. It is perfectly self protecting, of good colour, and "as sweet as a nut." It grows to a large size, and, being crisp and tender, I consider it to be in all respects an excellent addition to our Lettuces.—D. T. Fish, *Bury St. Edmunds.*

Nepenthes distillatoria at Drumlanrig.—A plant of this here has produced two new stems about 2½ feet long, on which I observed eighteen large pitchers. The older stems have reached the top of the rafters; on these I saw five fine pitchers, and seven had been cut off that morning, making in all thirty pitchers on the plant at one time.—W. Laurie, *Lynnwood, Alva.*

Forcing Bluebells.—I should like the opinion of some of your readers as to the desirability of forcing these. They would certainly be useful if they could be forced successfully. Here their bulbs are nearly as large as those of ordinary Hyacinths. I intend trying them by way of experiment.—R. Gilbert, *Burghley.*

The Potato Disease.—This is spreading with fearful rapidity—patches of rich healthy foliage one week are utterly destroyed the next—and nothing but an abundance of hot sunshine and drying winds can retard the progress of the mischief. It is a terrible evil, and the more I contemplate it the more am I conscious of our inability to cope with it.—A. Dean, *Bedfont.*

Strawberries that Resist Wet.—Those that I have found to stand the late wet weather best are Keen's Seedling, Dr. Hogg (a good variety of British Queen), Admiral Dundas, Elton (a late variety), and the old Eliza. These, I think, are superior to all the new kinds.—Rambler.

Blue Asphodel.—When Mr. Ruskin ran against what he calls a "Blue Asphodel" on Monte Mario, I am strongly disposed to think that he met with a plant of Eryngium amethystinum in full bloom. Both flowers and flower-stalks are a beautiful blue, which certainly cannot be said of any Asphodel.—H. H. Crewe, *Drayton-Beauchamp Rectory, Tring.*

Vines Not Fruiting.—I have a small Vinery in which the Vines were planted four years ago. I have had charge of it two years, and during that time they have never shown signs of fruiting, although they grow fast and look well. Does it make any difference, as regards their fruiting, whether they are propagated from cuttings or eyes. If any of your readers can give me any advice respecting them I shall be glad.—C. T., *Notts.*

Young Winter Carrots.—I know of no more useful vegetables during the winter months than young Carrots. I sow them in the first week in August outside, on a south border if possible, and commence drawing them in October, and seldom does the bed escape a visit daily. They are used both as a dish, and cut up in so many forms for purposes of decoration that they have become quite a necessity.—R. Gilbert, *Burghley.*

Potatoes.—I have not yet seen a diseased tuber, and our crops are heavy, the quality being good. We find Myatt's Ashleaf the best second early, and for late keeping no Potato beats the old Lapstone. Early Rose is better both in quality and quantity this season than I have ever known it. A row of it, 11 yards long, yields at this early season (July 26th) one barrel of good-sized Potatoes.—R. Gilbert, *Burghley.*

Giant Seakale (Crambe cordifolia).—There are few more stately or elegant summer plants than this Seakale. It should be planted by itself in a small round bed on a bank or lawn, where its large and handsome foliage is a conspicuous object in the late spring months. About midsummer it throws up a branching stem, 5 or 6 feet high, densely clothed with small snow-white flowers. It was in great beauty with me a fortnight ago, and contrasted well with the standard Rose trees, which were just then in full bloom. It seeds tolerably freely, and the root is easily divided in autumn.—H. Harpur Crewe, *Drayton-Beauchamp Rectory, Tring.*

No. 194.] SATURDAY, AUG. 7, 1875. [Vol. VIII.

> "This is an art
> Which does mend nature: change it rather: but
> The Art itself is Nature."—*Shakespeare.*

VARIETIES OF PERFUME IN THE ROSE.

In Roses there is a national interest; their scents are especially interesting, and, I am sure, to none more so than to our lady gardeners, whose delicacy of discrimination in matters of perfume will be of the greatest assistance to us in discussing this subject. The well-known perfumes of Mignonette, Musk, Heliotrope, Verbena, Violet, Orange-blossom, and others are highly prized by most people; but the same peculiar scents are maintained by them all the world over; while the Rose, queen of all, is unsurpased in the variety of its perfume. Having, during many years, given much attention to this subject, I shall now endeavour to make a classification of distinct types of Rose scents; asking your readers to bear with me in this, the first attempt that has ever been made of this kind. I would here enumerate some seventeen varieties, beginning with the well-known Sweet Briar:—1, Sweet Briar, the garden variety; 2, Moss Rose-bud scent, common Moss and others of that family; 3, Austrian Briar, Copper, Austrian, and others of that section; 4, Musk Rose, Narcissus, Old Musk, and others; 5, Myrrh-scented, Ayrshire, splendens; 6, China Rose scent, an astringent refreshing scent, old monthly China and many others; 7, Damask Perpetual scent, Rose du Roi, &c.; 8, Scotch Rose scent, the early double Scotch; 9, Violet-scented, White Banksia; 10, Old Cabbage-scented, the well-known double Provence; 11, Otto Perpetual scent, Charles Léfèbvre, Madame Knorr, &c.; 12, true Perpetual scent, Chabrilland, Pierre Notting, &c.; 13, Old Tea scent, the old yellow Tea or Magnolia Rose, and others—almost unpleasantly strong for some tastes; 14, Sweet Tea scent, Goubault, Devoniensis, Maréchal Niel, &c.; 15, Hybrid Tea scent, La France; Bessie Johnson is closely allied to this; 16, Nectarine or fruit scent, Socrates, Jaune Desprez, Aline Sisley, &c.; 17, a new variety which I would name the Verdier scent, represented more or less by all the Victor Verdier hybrids, such as Eugénie Verdier, Castellane, Countess of Oxford, Marie Finger, and many others of recent introduction. Some compare this slight but peculiar perfume to that of Apples; I think it might be described as a delicate Rose scent, with a "suspicion" of turpentine about it, pleasantly blended. The petals of the highly-scented varieties have on their inner surface minute perfume glands, or vessicles, containing the highly volatile essence, under the microscope distinctly visible. Those on the foliage of Sweet Briar and sepals of the Moss Rose may almost be seen by the naked eye. So that with the microscope and good olfactory practice, the interesting question, "Which are the sweetest Roses?" may be readily settled. To my taste, and by the same rule, the following are the most deliciously and powerfully scented of all Roses, viz.:—La France, Goubault, Devoniensis, Maréchal Niel, Bessie Johnson, Madame Knorr, Pierre Notting, and Charles Léfèbvre. As a rule nearly all the dark Roses are sweet-scented. To unstop Nature's finest bottle of Rose-scent, remove the cap in hot weather from a "pasted" full-blown bud of La France, or even the Old Cabbage, and the flower will instantly expand, throwing out a surprising volume of fragrance. Roses after they have been gathered a short time, appear to give off more perfume. Again, Roses blooming under glass usually give off more than those of the same kinds blooming in the open air.

Torquay. Henry Curtis.

LILY GROWING EXTRAORDINARY.

We have frequently recommended that Lilies should be planted in Rhododendron beds, the soil and slight shelter and shade of the shrubs assisting them perfectly. We had, however, no idea of the splendid results to be in this way obtained till we saw Mr. McIntosh's garden at Duneevan, Oatlands, the other day. Here Lilium auratum, planted near the margin of masses of Rhododendron, attains an astonishing degree of vigour, and sends up such noble pillars of its huge blooms as we have never seen equalled by any other plant, whether grown under glass or in the open air. Each noble tuft of Lilies, well defined, tells as well in the picturesque garden landscape of the place as well-grown and well-placed trees of the variegated Maple do. The smallest and most recently-planted specimens are from 5 to 6 feet high, while the old-established plants range from 9 to 11 feet high, so that one has to look up at the colossal bouquet of flowers borne by each plant of this noble Lily. From 110 to 140 full-sized blooms are borne by each tuft (originally one bulb). Some few of the plants have now past out of flower, others are yet to open, while the majority are in the full glory of blossom; the varieties show such a variation as to the time of flowering that their season here lasts nearly three months. The beds are on a steep bank, they are for the most part of sandy peat, with wet sand within 2 feet of the surface, and the garden is perfectly sheltered from all strong winds. No examples of Lilies in pots, as seen at our best shows, give the faintest idea of the specimens in this garden, or of their extraordinary effect in the garden landscape. With such effects from one single Lily we may well expect great aid from them in the embellishments of the gardens of the future.

MY WILD GARDEN.

The most showy part of my wild garden at the present time consists of about 20 feet square, filled with the two following vigorous plants, Galega officinalis alba and G. orientalis, with white and lilac pea-shaped flowers respectively. They are smothered in bloom and most effective; and growing, as they do, to nearly 5 feet high, are more fitted for naturalisation in the garden proper. In the latter (in a rich border) they grow taller, over 6 feet, and display more leaf and less flower than in the Grass in a wild place. They are easily increased by seed or division. In front of them are clumps of Phloxes; and they are flanked on one side by the tall-growing and handsome Pascalia glauca, and on the other by varieties of Helianthus, and by Polygonum cuspidatum. The whole forms a very striking autumn bed, and the Grass grows right up to the plants, so that no earth is visible; and backed up, as they are, by Irish Yews, the contrast between the dark green of the latter and the bright colour of the former is very good. A very effctive bed here consisted (the beauty is, of course, over now) of 100 bulbs of Allium Moly interspersed with fifty early-blooming purple Gladioli. The whole bed was carpeted with that most useful plant, Sedum acre aureum, and the contrast of the yellow Alliums and Sedums with the Gladioli was extremely good. We do not look on the Sow Thistles as by any means our friends, and would sooner have their room than their company; but one of them is, I think, worthy of a place in a wild garden—viz., Mulgedium Plumieri, a tall composite 6 feet high, with blue flowers, very much in appearance like those of the Chicory (Cichorium Intybus). There is a great deal of leaf in comparison with the flower, but it is distinct enough for trial in a large place. The Monardas, generally called Bergamots, are now well in flower, and are showy ornaments to the garden. M. didyma, with scarlet flowers in whorls, is perhaps the best, and looks well behind low shrubs, as well as in the mixed border. There are several varieties, and perhaps all should be grown, particularly one with violet-coloured flowers, which grows very vigorously; but none of them come up to the scarlet one. I tried them under the shade of trees in a thin wood, but found they did not do nearly so well as when fully exposed, and have, consequently, moved them. I do not think the old Rose Campion (Agrostemma coronaria) is sufficiently appreciated. One seldom sees it now-a-days; but, as we have it here, it is most valuable. Growing in great patches of crimson, with grey leathery leaves, it now lights up a dry hill-side in the wild garden, and has been in bloom for nearly two months. Grown in the garden proper, it partakes more of the character of a biennial, but on a gravelly hill is a true perennial, and, in addition, remains much longer in bloom. I believe it would flourish in the most wretchedly dry soil. It is so easily raised from seed that it should be grown largely in any place where there is room for it to be planted in quantities. A double form (crimson) is very good. There is also a white, and a white and red, variety, which are useful for associating with the highly-coloured one, but are certainly not nearly so good as the old form. Cannas look, to my mind, much better when in clumps of four and five than in the immense masses one sees of them in some of the London Parks, but I think the happiest effect is when an odd one starts up here and there amongst the perennials of the mixed border. A shilling packet of seed would yield quite enough plants, which (though not named sorts) are quite good enough for any garden, and, as they will flower the first year from seed if raised on heat, there can be no excuse for their absence from the mixed border. They are, of course, indispensable for the wild garden, where they will come up year after year if on a porous bottom, and protected with some dead leaves or litter. There are, as many of your readers no doubt have experienced, many hardy perennials, which, individually, or as single plants, have little or no beauty to recommend them, but the same plants, when grown in large masses may have a fine effect; and here it is that the wild garden is so useful. The common Bluebell, when carpeting a shrubbery or thin wood, shows us how Nature likes massing her colours; and, still better, when thickly planted, is the beautiful Anemone apennina. I have never seen anything much prettier than some of the woods in south Italy, towards the latter end of April, particularly those on the left-hand side of the road from Amalfi to La Cava after leaving the main road from the former place to Salerno. The ground was literally covered with the sky-blue of A. apennina, occasionally mixed with rosy Cyclamen, and was worth a long journey to admire. It was raining heavily, but I could not resist carrying off a quantity of bulbs, on the chance of some of them not resenting their untimely removal, and consequently was not surprised at only seeing about a dozen show up this last spring. I brought them over last year. However, I made a bargain afterwards with a Neapolitan nurseryman, who in the autumn sent me over a quantity of both Cyclamen and Anemone. There are also quantities of a rose-coloured Anemone growing with A. apennina, but these were found in the greatest abundance along the Sorrento coast, and in the island of Capri. Now, there is no reason why both these Anemones should not be grown in equal abundance in our thin shrubberies, where they would be as free as the common Wood Anemone. There are a few places where this has been done on a small scale, but to do so we must be able to procure roots at less than 2s. 6d. or 3s. per dozen. I have found few subjects better or more effective for a wild garden than masses of the common Sweet William (Dianthus barbatus), which we grow here in large quantities in every shade of colour, from dark purplish-crimson to white. They seed themselves very freely, if they have the least chance; and, if planted in any light dry soil become nearly, or quite, perennials; at all events, they have bloomed here for three seasons in succession, massed in front of the Rose Campion (both flowering at the same time, and for a long time in succession). A mixed packet of seeds would produce a number of plants in every shade. This reminds me that when one day speaking of Ware's new double Sweet William (Dianthus magnificus), a cottager told me that she had quite double plants of it for years; and had, in fact, only lost them during the last year or so. As, however, I had never seen them, I simply state the fact as told me, premising only that the cottager in question has always been an enthusiastic lover of flowers. OXON.

Culture of Nierembergia rivularis.—What is the best method of cultivating this pretty Nierembergia? The description of it in "Alpine Flowers" has given me a great desire to grow it, but hitherto my attempts to do so have proved unsuccessful. What soil and what situation are best for it, and should it be grown in the full sun or in partial shade?—USK. [About London, this plant thrives in borders or on the rock-garden in any ordinary open soil. Further north, it may require more heat than the open garden enjoys. Some of our readers will probably give their experience in other districts.]

Flowering of an American Aloe at Weymouth.—There is now flowering here a fine specimen of Agave americana. It is about thirty years old, and has been planted out-of-doors twenty-three years. Its flower-stem is now 23 feet high, but the flowers are not yet expanded. The plant stands about 10 feet above high-water mark, and within about 15 yards of the sea. Its base is 2 feet in diameter; its height, to the top of the leaves, is 8 feet; length of leaves, from 4 to 5 feet, and about 9 to 10 inches wide at their middle. It is, probably, the youngest specimen that has ever flowered in this country.—JOHN SCOTT.

Mistletoe on Rose.—A correspondent of the "Field" states that he has a Rose tree with a bunch of Mistletoe growing out of it about 2 feet from the root. The plant is apparently quite healthy. Is this a common occurrence?

NOTES OF THE WEEK.

—— THE reports of the state of the fruit crops throughout the country, which we publish this day, have an unusual interest this year from the notes on the kinds of fruit that succeed best in each locality. These notes, and the reports generally, are the results of the observations of the best fruit-growers in the country. Amateur readers may, with advantage, note the varieties which have proved most worthy of culture in the various districts.

—— MR. G. F. WILSON, of Weybridge Heath, has sent us specimens of the beautiful Lilium Leichtlini, one of the most graceful and prettily coloured of all the recently introduced Lilies, and one destined to prove a valuable ornament to our gardens.

—— TWO fine Eryngiums, of the Pine-apple-leaved section, are now in flower at Kew, in a shrubbery near the "rock-work." Eryngiums of this type are likely to prove effective ornaments in our gardens in the warmer districts.

—— MR. HILL, Keele Hall, has sent us cut specimens of Clerodendron Balfourii loaded with jet black fruit, partly surrounded by rosy-lilac-coloured bracts, and half-covered by an orange-scarlet arillus, which gives the fruit an attractive and novel appearance.

—— MR. MAW, who has been absent during the last three weeks on a botanical tour through the Lombardy Alps, has just got back with capital results, including a good supply of Primula daonensis (Œnensis of Thomas), which is, we think, new to cultivation.

—— A NEW volume of Dr. J. T. Boswell Syme's "English Botany" is advertised as in preparation. It will contain the Ferns, Fern allies, and some additional plants, together with a general index to the whole work, which is one of the best yet published on English botany.

—— AT Woodditton, Suffolk, Amy Swann, the wife of a labourer, aged thirty-two, and Jane Swann, her daughter, aged thirteen, persisted in eating some Fungi, under the impression that they were Mushrooms. The result was that they both died after two days' considerable suffering. Mrs. Swann's infant child has since died.

—— NEWS has just reached us of the death of M. André Leroy, of Angers, one of the most distinguished horticulturists of the age. His nursery at Angers is one of the great gardens of the world, and his noble "Dictionary of Pomology" is a work far more precious than anything the puny efforts of our pomologists in this country have yet produced.

—— OWING to the probability that the Potato disease will be prevalent this autumn, Messrs. Hooper are of opinion that their Potato competition, at present fixed to take place on the 10th of November, should be held earlier than that date—say in "September, or thereabouts." This change Messrs. Hooper believe will be an advantage to competitors, with whose views on the matter they will be glad to be furnished.

—— THE Cryptogamic Society of Scotland is to hold a Fungus show and conference of Cryptogamic botanists at Perth, on September 29th and 30th and October 1st. The first day is to be devoted to field excursions, the second to examination and arrangement of the specimens, with a "Fungus dinner" in the evening, and the last to a show in the City Hall. The secretary is Dr. Buchanan White, Rannoch, Perthshire.

—— AMONG the more beautiful hardy flowers now in bloom round London are the orange Asclepias tuberosa, the varieties of Platycodon autumnale, the handsome Triteleia laxa, Dianthus Atkinsonii, Phlox glaberrima, Funkia spathulata alba, Anemone palmata (flowering the second time this season), the double Peach-leaved Campanula, Lysimachia clethroides, a species of Calochortus, Gentiana Pneumonanthe and septemfida, Calliprora flava, Adonis pyrenaica, Littonia modesta, and Statice incana in variety. This last is a very handsome plant, which, cut when in fresh blossom, endures for years. The above, and many more commoner-grown plants, we observed in Mr. Ware's nurseries at Tottenham during the past week.

—— MR. B. S. WILLIAMS writes to us to say that there is now in bloom at Chatsworth the best plant of Disa grandiflora superba he ever saw. It has been grown in a cold Heath-house, in which there has always been plenty of ventilation both night and day, except during frosty weather. The plant, he adds, is worth a journey from London to Chatsworth to see. On one spike it has twelve large flowers, bright scarlet-crimson in colour, veined with pink. There is no doubt that this is the same variety as was figured, some time ago, in Warner's "Select Orchids," when it was stated to have had eight flowers on it. This plant, quite lately small in size, has reached its present state in a very short time.

—— IN consequence of the large amount of space occupied by the fruit reports in the present number of THE GARDEN, we have not been able to publish our usual number of illustrations or variety of matter this week.

COLLECTIONS *v.* SELECTIONS.

The great desire of many lovers of flowers is to have the most complete collection of all the known varieties of some particular class of plants that are to them objects of special admiration; and usually, in these cases, the expense is not considered, so long as the end can be attained and the collection made complete. While fully admitting the value of these collections, from a botanical point of view, at such places as our public gardens, it by no means follows that they are serviceable in gardens when a large demand for decorative plants, cut flowers, and gorgeous flower beds keeps all the available staff fully employed. For my own part, I find selections answer the purpose much better, for a plant that is only valuable for its rarity goes but a little way towards meeting the general demands, even if its commercial value is equal to a house full of old varieties. If we take Orchids as a type of the collector's fancy, we find them vary considerably in their degree of usefulness in a general way, for while many of the most lovely kinds last perfectly fresh, either on the plant or as cut flowers, for several weeks, others, again, only last as many hours. Equally varied are their merits as regards the form and colour of the individual flowers, for while many are the most lovely of Nature's products others of the same family have far less conspicuous flowers than a large proportion of our most abundant native flowers. It is the same with many other classes of plants; for beauty does not appear to be more constant in the vegetable than the human family. Another weighty reason why gardeners should select, even from the most attractive classes of plants, is the impossibility of accommodating the immense number of varieties that every year tend to swell the number of really good plants in cultivation. The numerous varieties of foliage plants and Ferns that now form so important a feature amongst decorative plants have well nigh superseded the old flowering stove plants that for the greater part of the year had but little to recommend them, while the labour attending their culture was out of all proportion to the amount of service they rendered. To grow two distinct Roses that it takes a professional rosarian to distinguish between, or two scarlet Geraniums different only in name, appears to me out of the line of professional gardeners, who, as a rule, value a plant for its serviceable qualities. If it were otherwise, and collections instead of selections were to become the rule, our gardens would be more like museums, with a greater display of labels and hard names than of flowers and foliage.

Fruit and Vegetables.

Of even greater importance, than in the case of ornamental plants, is the selection of fruits, for the trees being of a more permanent character, the regularity of the supply will entirely depend on suitable varieties being chosen to succeed each other in regular order. This may be much more satisfactorily accomplished by growing varieties that can be depended on as to their season of ripening, than by growing a large and miscellaneous collection of tried and untried sorts. If we take Peaches as an example, those in the houses may be made to yield a long succession of fruit by planting the earliest ripening kinds at the warmest, and the late varieties in the coolest, end of each house, with a corresponding benefit to the trees; whereas a far greater number of kinds planted indiscriminately may all come to maturity at once. The preservation of ripe Grapes, in good condition, late into the winter and spring, is a simple matter if the few varieties suitable are grown for the purpose. Amongst these are such as Lady Downe's, Barbarossa, and Calabrian Raisin. But if one attempts the same thing with a general collection of thin-skinned kinds, no amount of attention compensates us for the absence of a judiciously made selection. Pears are amongst the most useful of fruits for autumn and winter, and require as much knowledge of their various qualities to ensure a regular supply as any fruit grown. So many varieties that are really good ripen simultaneously, that, without great care, the supply will exceed the demand; and they soon become unfit for table when over ripe. Where the wall space is limited, some adopt the system of grafting several varieties on one tree; but I do not consider this method to be in every respect desirable. Apples are somewhat bewildering to a novice, there being so many; but a very limited number of varieties will sustain as good a supply for both kitchen and table as if all the known varieties were grown. These remarks will apply to most kinds of fruits. The principal aim of the cultivator should be a regular and constant supply. When forced fruits are grown, they should not be commenced until there is a certainty that the supply will last until those grown in the open air are fit for use; and, by selecting early and late sorts for correspondingly warm and cold seasons, the season of each may be greatly prolonged. The Society's gardens, at Chiswick, have done good service by reducing the number of synonymous terms under which many of our vegetables were known, and catalogues are thus considerably reduced in bulk, although many still offer collections which may answer the purpose of those who would find a difficulty in selecting for themselves. The new varieties offered are, doubtless, acquisitions in some localities, and even the old-established varieties are much better adapted to one locality than another. Hence the conflicting statements that are often made respecting the value of different kinds. New kinds often receive exceptionally good treatment the first year or so, and apparently excel old varieties far more than they do when placed amongst, and treated like, ordinary kinds. The amount of success, as regards successional cropping, will always depend on the forethought shown in selecting suitable varieties in the first place, and sowing at frequent intervals, according to dates found to suit the locality. If we take Broccoli as an illustration, we find varieties enough to suit any collector; but many of the late kinds are very capricious, and sometimes come in before the early ones. For this reason, gardeners who have to provide for a regular supply, greatly prize a really good late or early variety of any vegetable.

Henham Hall, Wangford. James Groom.

OUTDOOR PANSIES AND VIOLETS.

These may be said to have become indispensable to the flower garden, where they can be used in various ways, and at all seasons; but certain characteristics are required to constitute Pansies and Violets acceptable plants for beds; and, seeing that they are wanted more in spring than in summer, earliness is an absolute requirement. We want Pansies and Violets that will blossom with the Primroses and Daisies in early spring, and our raisers have rightly and successfully turned their attention to that matter. The now well-known Viola Cornuta Perfection, which Mr. Williams distributed a few years ago, and which is now being so much used in summer flower gardens, is deficient in this respect, inasmuch as it does not flower till May. Hence it cannot be used in early spring gardens. All its progeny partake of the same late-flowering character. Continuity of bloom is another indispensable characteristic, and all these varieties that send up a few leading shoots and do not produce young successional wood from near the base, so as to ensure continuity of flower, are of little and uncertain value; and this leads me to another great requisite habit. This is most important. The habit ought to be dwarf, compact, free-branching, and spreading. A habit of this kind ensures successional bloom, and, by covering the surface, keeps the soil cool and moist about the roots. This matter of appropriate habit is of much greater importance in the hot, dry south than in the moist and cool districts of the midlands and the north. We want tenacity of growth also—a holding on to the soil through the hottest and driest, as well as through the coldest and wettest, weather. Southern raisers are bound to pay great attention to these requirements, and they have succeeded in obtaining them in a remarkable degree.

The following is a list of some of the best Pansies for beds, as far as my experience goes:—Blue—Blue King, clear pale blue, with dark blotch, early, continuous, good habit, free bloomer. Cliveden Blue, the true old variety of which is scarce, good in colour, and very early. Dickson's King, bluish-purple, large, continuous, and an effective bedding kind; I have placed this among Pansies, though it is classed by the raisers among Violas. Celestial, rich dark blue, with dark blotch, compact in habit, and continuous in bloom. Imperial Blue, deep blue, large dark blotch, very fine, but best adapted for cool moist situations. Yellow—Dickson's Sovereign, rich golden-yellow; flowers, round and of great substance; habit, excellent, early, free, and continuous in flower. Bedfont Yellow, pale yellow, early erect, good habit, free, and effective. Pride of Rutford, an improved Cliveden Yellow, large, very early, free, and continuous; good in habit. Primrose Queen, delicate primrose, dwarf and compact; very free, continuous and effective. White—Dean's White Bedder, most useful and effective, very early, and stands well throughout the summer. Dickson's Queen, pure white, dwarf, compact, and branching; very fine, continuous, and effective. Great Eastern, pure white, fine shape, very free; dwarf and compact. Delicata, pure white, the upper petals blotched with blue early in the season, but in hot weather it is pure white; it stands exposure to heat well, and is most effective. Purple—Cliveden Purple, early, and excellent for spring work. Tyrian Purple, clear velvet purple, fine shape, good in habit, very free, and effective. Violet King, deep violet shaded with purple, dwarf habit, and profuse bloomer. Dickson's Lavender Queen must be added to the foregoing, being novel and effective in colour; it has a robust habit and is a free bloomer.

Among Violets for earliness, duration, and effectiveness, nothing can compare with Blue Bell, which is as valuable in spring as in summer. In the south, during hot weather, all the varieties of the Cornuta Perfection type are apt to become much affected with mildew, and cease flowering; but Blue Bell is proof against this scourge. Blue Bedder is another early and continuous bloomer, the colour of which is violet-purple. Old-established plants of this variety bloom with remarkable profusion early in the summer. Imperial Blue Perfection, purplish-violet, is exceedingly effective; and, though it is a little tall in growth, it is a useful variety, which can be highly commended. Lothair, clear indigo-blue, has a very dense, dwarf habit, and does well for edging; it is free, continuous, and effective. Queen Victoria, clear blue, with large, well-formed flowers, is a fine variety also; the new Violas, Waverley, appears to be almost, if not quite, identical with this. The Tory, pale indigo-blue, is also a fine variety, well deserving cultivation. Cornuta Perfection and Cornuta Magnificent are good for summer work, but, during dry weather, apt to become affected with mildew. Of purple Violets, the only representative that has made a reputation is Mulberry; this is of a rich mulberry-purple; flowers, large and of the finest kind; habit, singularly dwarf, dense and spreading; early, free flowering, and continuous. Of white kinds, we have White Swan, a pure white of the Lutea grandiflora section, very early, continuous, and effective; and Lily White, pure white, with yellow centre, excellent in habit, and an effective bedding kind. One of the best of all the yellow bedding Violets is Dickson's Golden Gem, deep golden-yellow, very early, free, continuous, and certain; and, as a pale yellow nothing surpasses Corisande, clear pale primrose, early, distinct, free, and a continuous bloomer. Princess Teck is a very distinct variety, delicate mauve in colour, very novel and distinct. This list does not exhaust all that are useful in the flower garden; but it serves to indicate those that can be depended on, and which, if judiciously used, would yield a succession all the year round. For early spring work I should rely on Tom Thumb (yellow), Blue Bell, Cliveden Purple, and White Swan. These bloom profusely, which is most essential in a spring garden; and, in order to have strong plants of them, I should select those that were struck from cuttings in June and July, and, when rooted, planted out in beds to make growth for use in the spring garden. During the remainder of the summer they would be perfecting their growth, and would bloom more or less during the winter when the weather proved favourable; and early in the spring the plants would become covered with flowers, which would last until July, if the plants were allowed to remain in the beds.

It is an easy process to raise Pansies from cuttings during the summer. My plan is to make a bed under a north wall, by using pieces of board a foot in width, and then putting in at the bottom a good layer of brick rubbish; on this I place some pieces of turf, fill in some rough soil, and finally add, as a surface 2 inches in depth, a good open soil, with plenty of leaf mould and sand in it, and press it down rather firmly before placing the cuttings in it. I select the young growth thrown up from the roots of the plants out of which to make the cuttings, and they are put into the bed some three-quarters of an inch in depth, about an inch apart in the rows, and the rows an inch and a half asunder. The cuttings are pressed firmly into the soil, and a good sprinkling of water is given them. Keep the bed moist and cool, and shade it from the sun, and there will be no difficulty in striking cuttings and in getting fine young stocky plants for spring use. When the spring plants are lifted, at the time the beds are cleared for the summer display, they should be cut close down, and then planted in some spare spot, using the siftings of the potting bench to plant them in, and place about them. They will soon begin to make a free growth, and will bloom in the autumn. I now reach the time when the method of getting plants for summer flowering must be pointed out. I obtain them from the plants lifted in the spring and planted out, or just divided. In September I lift a few of the roots, pull them to pieces, and a large number of the young shoots thrown up from the roots will be found to have rooted. A number of these are selected, and planted out in a carefully-prepared bed for the winter, and by the early part of May they will be good tufts, and will throw up flowers. It is better to do this than to trust to the plants used in spring to carry one through the winter; as some sorts will stand well, while others fail, and then there are awkward blanks in the bed. I plant out a few subjects to furnish cuttings, so as not to have to get them from the summer beds.

FLORAL DECORATIONS AT THE GUILDHALL.

For the recent inter-municipal festivities at the Guildhall, Mr. J. Wills, of South Kensington, supplied the floral decorations, which were remarkable for the quality and rarity of the plants employed and the charming effects which they produced when artistically grouped and massed by Mr. Wills. Coming early upon the scene previous to the ball, before the glittering throng had obscured the view, the visitor might have remarked that the display of plants had been entirely re-arranged, as well as greatly augmented, since the preceding night. Nor was it only that more Palms reared their graceful heads over an increased array of bright blooms and variegated foliage. In addition, Mr. Wills had snatched a hint from the stately pleasure-dome which Kubla Khan decreed in Xanadu.

> It was a miracle of rare device,
> Those sunny pleasure-domes and caves of ice.—Coleridge.

Caves of ice, irradiated by lights of diverse hue, and decked with greenery of waving Ferns captivated the eye, while, at the same time they imparted coolness to the air. These frozen rockeries, first introduced at the ball given by the Prince of Wales in the Royal Horticultural Society's buildings and grounds, were new to the City.

Maiden-hair Ferns in the House.—I have heard so many lamentations of late on the great difficulty of growing these beautiful drawing-room ornaments that I feel inclined to communicate my own experience, in the hope that it may be of use to your readers. For many years I have kept them in my drawing-room, not only without damage to their appearance, but also greatly to their advantage. My Ferns are always bushy and of the brightest green, and seldom without a few young fronds just piercing the soil to replace those that are failing. I find they give far less trouble than any other pot plants indoors, except, perhaps, Begonias. My method of culture is very simple. I re-pot them once a year in January, using pure peat mould; I water every two or three days liberally with lukewarm rain water, if I can get it, and I do not stop until it comes through into the large deep saucer in which the plants always stand. It is not necessary to keep them always standing in water; probably the saucer may become dry the next day, but much will depend on the heat of the room. Mine has a large fire on most days in winter, but my Ferns have had to endure occasional trials of perhaps two or three frosty days together without a fire, and have not been hurt. In summer we have constant thorough draughts also, without any harm arising to the plants.—N.

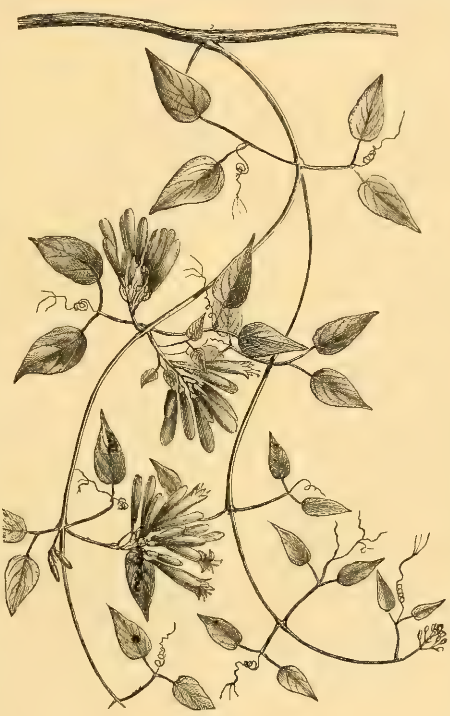
Roses from Cuttings in August.—A "Surrey Gardener," writing in the "Journal of Horticulture," says:—"I have never failed to strike as many Roses as I required by inserting the cuttings in July or August. When the cuttings have been inserted in an open place, and a period of drought has followed, many of them failed to grow; but, when planted in a north border, failure has been very rare, and cuttings of half, or rather more than half, ripened shoots 6 inches in length, with all the foliage removed except the top pair of leaves, *firmly planted up to these leaves*, are almost certain to grow if put in at this season of the year. The main point to aim at is to keep the foliage fresh as long as possible, and to this end a shaded place and occasional sprinklings of water should be afforded. Another point to attend to is, that the cuttings cannot be too quickly made and put in, for, if allowed to lie about until the bark becomes shrivelled, they will not prosper. Most varieties of Roses thrive well on their own roots, and some of them better than on stocks. Baronne Prevost on its own roots is much finer and sweeter than when worked, and so is the old Provence Cabbage Rose. Indeed, I have fancied that many Roses are sweeter when grown from cuttings than when worked on the Briar—certainly such is the case with those I have named. I have had blooms of John Hopper from cuttings growing at the base of the Briar invariably superior to those elevated above them and growing from the Briar stock; and the same remark applies to the lovely old Rose Coupe d'Hébé. If stocks affect the quality of fruits, why should they not exert the same influence on flowers? As a general rule I believe Roses are sweeter when on their own roots than they are on any stock, and some of them are finer and most of them more permanent. The present is a very good time to put in the cuttings, and if firm wood is selected and the work quickly done; if 5 inches of the cutting are put firmly in the ground and 1 inch left out; if shade is afforded and water given occasionally, not one cutting in twenty will fail to grow."

THE INDOOR GARDEN.

ARRANGING PLANTS FOR EFFECT.

The effective arrangement of plants, either in conservatories or in drawing-room stands, is a matter requiring considerable taste and experience; a skilful workman will often effect a better arrangement with a few ordinary materials than one with but little knowledge of the art will do with abundance of plants to select from. But it will greatly assist even the best operators, if plants specially suited for the purpose are selected. From a good collection of specimen plants, it might be easy enough to select suitable subjects for single vases, or central plants for large stands; but the natural and graceful effect of decorations of a more general character will much depend upon the small edging plants used, and the majority of plant stands are so shallow that only plants in small pots are of any service in them. Foliage plants, such as Palms, Dracænas, and Crotons, enter so largely into all such combinations, that a stiff or formal arrangement is well nigh impossible; while Fuchsias, by their elegant habit, contrast well with the more erect kinds of Achimenes, Balsams, and Cockscombs. For an edging plant I find nothing more effective than the beautiful Thunbergias aurantiacea and alata, and a. alba. They may be grown so as to form beautiful plants in 48-sized pots, and, from their elegant drooping habit, they give a natural and charming effect to any groups or stands with which they are associated, and their blossoms are seen to the greatest advantage when the shoots are allowed to grow naturally over the edges. A good selection of Gloxinias, and well grown plants of the silvery Panicum variegatum, together with a liberal mixture of Ferns and Lycopods, never fail to give a fresh and charming appearance to all floral arrangements. When such displays are carried out, shading is indispensable for the well-being of the plants. Window-boxes planted with blue Lobelia, Dactylis variegata, Poa trivialis variegata, Iresine Herbstii, Coleuses, Mesembryanthemums, or Portulacas, and surfaced with fresh green Selaginella hortensis, are very showy. They may be varied by the introduction of choice succulents, and margined with Isolepis gracilis, one of the most useful of all decorative plants.

Henham. James Groom.



Pyrostegia Ignea.

PYROSTEGIA IGNEA.

This handsome Bignoniaceous plant, though long known in gardens, is not so often met with as it ought to be, although nothing can be more strikingly beautiful than its long pliable branches, loaded with bright orange flowers. It is a native of Brazil, and especially of the provinces of Rio de Janeiro, San Paul, and of Minas Geraes; it does not appear to be found as far north as the river Amazon. It is a plant which, under cultivation, grows with great rapidity, throwing out branches that occasionally reach a length of 60 or 70 feet. Its flowers are numerous, and of a velvety orange-yellow colour. The calyx is small, and the corolla tubular. Creeping Bignoniads of the hot or temperate house require, in order to become well developed, and to flower luxuriantly, a rich porous soil. They should also occupy the lightest portions of the house. They may be readily propagated by means of cuttings placed under cloches; but they may also be raised from seeds, which should be sown in pots or pans in heat, and the young plants should afterwards be pricked out. Climbers, especially Bignoniads, usually require plenty of room in order to display their beauty to advantage; but it is to be regretted that the plant now under notice is not more frequently grown than it is. In a warm conservatory or intermediate house it would be quite at home, and, when once fairly established, could not fail to become a favourite.—" Revue Horticole."

Acacia armata.—This, though one of the oldest of cultivated Acacias, is certainly one of the most ornamental. A plant of it, 15 feet high, grown from seed and planted out, formed the most striking object in a large conservatory in which I saw it last May. It was grown with a perfectly straight and naked stem, surmounted by a symmetrical bushy head, several feet in diameter. For general purposes it is, however, best in moderate sized pots, in which it can be employed for vases and baskets with the best effect. To keep it within bounds the shoots may be clipped well in annually after flowering; this will cause it to furnish thickly without any further training. I usually pot it at the same time, reducing the roots considerably and returning it to the same-sized pot again, keeping it in the greenhouse all summer, where it makes good growth before winter and plenty of flower-buds. Peat chiefly, with a little loam and sand, suits it perfectly.—J.

Epacrises.—These endure hardships better than Heaths. Plants of them that lose their foliage and appear almost dead, from being left too long in warm dry rooms in winter, seldom fail to push forth as freely as ever again in spring if kept a little warm till they start, and occasionally dewed overhead. They must be badly used indeed if they fail to revive under such treatment. From among the many varieties of these now in cultivation the following is a good selection:—Alba odoratissima, carminata, Albertus, delicata, densiflora, elegans, grandiflora, Kinghornii, multiflora, Mont Blanc, splendida, and Queen Victoria. They require a compost of peat and silver sand, firm potting like the Heath, and efficient drainage. Unless large specimens are desired the plants will do well enough if potted once in two or three years. They should be cut down after flowering, and I have always noticed that, unlike soft-wooded Heaths, which prefer the open air in summer, they do best in a cool greenhouse or pit during the season. Some of the varieties make long straggling shoots, but these are not unsightly, and the longer they are the longer will the wreaths of flowers on each shoot be, if the plants have been grown under a good light, with plenty of air, and are well ripened. It is best to use the Epacris for flowering in early winter or spring, which gives the plants time, after being cut down, to make a good growth the following summer; when cut down late the flowers are not so abundant nor so fine. Their roots will stand pruning when it is needful to keep them in small-sized pots.—S.

The Best Early-flowering Pelargoniums.— Those who have to produce a good supply of flowers for the conservatory, and for cutting for indoor decoration, should work up a good stock of early-flowering Pelargoniums, some of which are of the utmost value for this purpose. A few of the best (says the "Gardeners' Magazine") are Braid's Duchess of Edinburgh, a compact-growing variety, which produces grand trusses of white flowers with rose-coloured spots on the top petals; Triomphe de St. Mandé, rich glowing magenta, a capital companion to the foregoing, but stronger in growth and less compact; Queen Victoria, a variety having flowers of large size, and so closely packed with petals as to have the appearance of being double—this is attractive as a decorative plant, and the flowers, when cut and well wired, are of great value for hand-bouquets; Captain Raikes, a kind having flowers of a deep crimson colour—the trusses of this are not, however, compact enough to admit of much being said in its favour as a decorative plant; but, for cutting for bouquets, as the individual flowers can be easily wired, and as they are so stout, they remain fresh for a very considerable period. To the foregoing may be added Prince Arthur, a deep rosy-carmine kind, with white throat and dark blotch on the top petals; Princess of Wales, blush, the petals marked with a dark crimson blotch; Prince of Pelargoniums, a beautiful variety similar to Dr. André, with fringed petals; Kingston Beauty, white with dark purple spot on each petal; and Prince Charlie, white ground with large rosy blotches, dwarf, nearly perpetual blooming, and very attractive.

MR. BLEU'S NEW CALADIUMS.

This persevering raiser has just sent out another fine batch of splendid new seedling Caladiums. The varieties below are described by the "Illustration Horticole" as first-class:

Gretry.—A handsome and attractive variety, of good habit and elegant form, displaying a rich contrast of colours. It is the issue of C. Maxime Duval and C. Auber. The leaf, which is more elegantly elongated than that of the former, has the same carmine-red centre, the colour spreading less over the blade; and its numerous large white spots are from the latter.

Louise Duplessis.—A grand acquisition, the result of a cross between C. Duc de Ratibor and C. bicolor fulgens, having a leaf intermediate in shape between the two, with brilliant lake nerves and rose-lake outlines, and the transparent white ground is slightly suffused with pink, and traversed throughout with very slender green veins.

Madame Heine.—This novelty is the issue of C. Madame Andrieu and C. Duchartre, and is remarkable for its carmine nerves, which show off the slightly-tinged ground faintly traced with a deep green network, to great advantage.

Minerve.—A lovely variety exhibiting quite a new combination of colours. The large well-posed leaf has the centre and nerves of an extremely bright violet-rose, encircled with a greyish-green, and an outer band of blue-green, the whole thinly spattered with white blotches. It was raised from C. Houlletii and Madame Andrieu.

Vicomtesse de la Roque Ordan—Like the foregoing, this variety delighted all who had an opportunity of seeing it at the shows of Paris and Versailles last year, where it appeared for the first time. It was obtained from C. Duc de Ratibor and C. A. Bleu. The deeply pellate leaf is elegantly lengthened out, and has delicate pink nerves, forming a pleasing contrast with the opaque snowy-white ground, which is prettily laced with bright green.

Alcibiade.—A large and brilliantly-coloured variety, having ample leaves with a scarlet centre and green bordering, thickly spotted with white. Although this plant has very large leaves it combines with them a good habit. C. A. Bleu, fertilised by C. Madame Humbelle was its parent.

Darlingtonia californica at Glasnevin.—Of pitchers old and new, small and large, this plant now carries about a score; but towering far above their fellows are the wonderful half-dozen of this year's growth. In every way these latter are nearly, if not quite, double the size of those produced last year, from which were selected the specimens used by Dr. Hooker to illustrate his lecture, and which we heard him state on the occasion were the finest which he had ever seen. We believe, in fact, that they were larger and finer than any met with on the plant in its native habitats, and were regarded at the time as being examples of about the maximum development of which the plant is capable in respect of its seductive insecticidal amphoræ. As above remarked, those of the present season's growth are six in number; the height of the tallest is about 2 feet 6 inches; the inflated tessellated hood or dome measures about 6 inches by 4 inches, and would scarcely be covered by a partially-closed hand of the largest size, and the usually small orifice leading to the tube, and which is covered by the hood, is fully 1½ inch wide. The two singular fish-tail coloured flaps which depend from, and then diverge laterally in front of, the dome are each about 3 inches long, and measure fully a span from point to point! The soil in which the plant is growing so vigorously is of chopped Sphagnum, with a portion of rough fibry heath-soil and lumps of charcoal, the whole surfaced over with growing Sphagnum. The drainage has, of course, been well cared for, and the plant sits slightly elevated on its mossy mound, over which is dotted here and there tiny plants of that little insect-trapper of our own bogs—the round-leaved Sundew. Dr. Moore has reason to be proud of his Darlingtonia, and, we think, may safely challenge the gardens of Europe to show such another.—"Irish Farmers' Gazette." [From having seen the Darlingtonia in its native country, we may add that the development above described is as great as its natural one, under favourable circumstances.]

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Pansies and Violas.—Cuttings of these should now be put in. They strike freely in the open air, under a north wall, but must be well supplied with water. The Violas especially deserve a place in every garden; the profusion of flowers they bear, and their continuous blooming habit, place them in the front rank of hardy decorative plants. Pansies, particularly the self-coloured varieties, are very beautiful during the spring, but do not flower as long as the Violas; yet, if a succession of plants is kept in hand, by putting in a few cuttings every six weeks through the season from the time growth commences in spring until autumn, uninterrupted bloom may be had; but, in the hot summer months, they should be grown on the north side of a wall, or they will not produce good flowers, as they do not like exposure to the drying influence of the sun.

Globe Artichokes.—It is no uncommon occurrence to see the stalks of Globe Artichokes left standing for months after the produce has been cut, or, where a portion has not been gathered, allowed to flower. It is to such treatment as this that the loss of the plants through the winter may be attributed. Where the stalks are thus left until late in the autumn, very few healthy suckers are produced from the crown of the plant, but only a small number of weakly, drawn up shoots, half smothered by the large leaves that grow from the stems; whereas, if these were removed during the present month, by cutting them right out from the bottom, the plants would throw up a number of strong shoots that, by full exposure to light and air, would be in a much better condition to bear a severe winter than the growth produced under negligent cultivation.

Cauliflowers, Winter Greens, and Spinach.—Prepare a piece of ground in an open situation, on which to sow Cauliflower seed. In the northern part of the country the best time is about the middle of August; in the south the seeds should be put in from the 20th to a few days later. If sown earlier than this, many will button in the spring. Fill up all vacant ground in the kitchen garden with Winter Greens, as Peas, Broad Beans, Cauliflowers, and Potatoes are cleared off. It is important that no time should be lost in this kind of work, as delay at this period of the year is more injurious than at others, inasmuch as these crops are not allowed time to grow to a useful size before winter has set in. The plants may now be put in closer together than would be advisable earlier in the season, as they will not get so large. If there happens to be a vacant place at the north side of a wall, some Cottager's Kale may be planted upon it. This will, after the first cutting in the spring, throw up quantities of sprouts without running to seed so early as if grown in a situation under the influence of more sun. By this means a supply of useful Greens will be secured that will last until early Cabbages are ready for use. A sowing of winter Spinach should now be made. This will come in through the autumn, when the round-leaved kind is over, and when there is considerably less variety in vegetables, the absence of which is often not provided for or thought of until it is felt.

Pits and Frames.—Late Melons will require assistance in bottom-heat by placing linings round the sides of the beds. If this is not attended to with the latest sown crops the fruit cannot arrive at maturity, and it will be very inferior in quality. If stable manure is not at hand collect Grass mowings, vegetable haulms, and, if available, some old leaves of last autumn's gathering. If these are mixed together and placed round the beds in a body 2 feet thick, allowing it to come some distance up the sides of the frame, a good heat will be thrown into the beds, which will have the effect of hastening on the fruit to maturity. Late Cucumbers require similar treatment. Where there is a demand for these far into the autumn and there is no suitable place in which to grow them, except a dung frame, every means should be taken to have the plants as strong and healthy as possible previous to their being planted out. By proper attention the plants will often bear, without suffering, a low night temperature for a short time, provided they have enough warmth at the roots and are in a vigorous state and free from insects. If a slight hot-bed—one 2 feet in height will be sufficient for the purpose required—is now made up it will be found very useful for striking cuttings of choice varieties of Phloxes, Pentstemons, Snapdragons, and Hollyhocks. A two or three-light box will hold a large quantity, and, if there is a bottom-heat of 60°, they will root freely. Phloxes, propagated yearly in this way for flowering the following season, are much dwarfer, and produce very fine heads of bloom. Many grow the best varieties in this manner, planting them out in the spring in beds about a foot apart, whence, after they have flowered, they are transferred to the herbaceous borders, where they form large masses, but the individual blooms are not so large as those produced by the young plants. With plants of this description, choose, for cuttings, as far as possible, shoots that have not flowered, which root more freely than those that have bloomed, although the latter will grow, allowing a couple of joints to each. Hollyhocks are often struck from single eyes. On the surface of such a bed as recommended, place 6 inches of sandy soil, in which insert the cuttings in rows a few inches apart, according to the size of the different plants to be increased. There is one essential in striking all such subjects, as the above and others of a similar nature—they must never want water, and the soil should always be kept quite moist, a thin shading being put over them when the sun is powerful. As soon as they are rooted, pot them singly in small pots, and gradually inure to full exposure in the open air. During the winter they should be kept where the soil will not get frozen in the pots.

Glasshouses.—Hardwooded greenhouse plants, such as Acacias, Genistas, Epacrises, Hydrangeas, and similar subjects that are used for winter and spring blooming are much better and will flower more profusely for being submitted now for some weeks to the full sun and air, which has the effect of checking growth and setting bloom buds. Greenhouse subjects of a more tender nature, as Boronias, Eriostemons, Correas, Adenandras, Chorozemas, Dillwynias, and Tremandras, a month's exposure in the open air will do them much good, enabling them to get through the winter without being so liable to mildew as if kept under glass all through the summer; place them for a few days where they will not be exposed to the sun at mid-day; after this they will become inured to their new quarters, so that it will not do them any harm. Put a piece of mat or something of a similar character round the pot, so as to shield them from the sun's rays, or the roots will receive injury. Attend to them with sufficient water, of which more will be required than when indoors, and syringe overhead on the evenings of bright days. Cinerarias should at once be placed in their flowering pots—6 or 7 inches in diameter is large enough for ordinary purposes—and, if the plants are well managed, these will grow them to a size that will produce fine heads of bloom. They are very subject to greenfly, which must never be allowed to get established upon them, or both appearance and vigour will be sacrificed. As soon as the pots are filled with roots, they should regularly be supplied with manure-water. Never allow them to become cramped at the root before moving them into their flowering pots, or they will not attain their wonted strength and size. Grow them in good loam, with one-fifth of rotten manure, and leaf soil in equal parts added, and as much sand as will keep the soil porous. They do not bear tobacco smoke well, as it often injures the leaves if applied of sufficient strength to destroy aphides, to free them from which dipping in a pailful of tobacco-water is the best remedy.

Primulas.—These continuous winter-blooming plants should also be moved into 6-inch flowering pots. They are somewhat spare-rooting subjects, and do not require a great body of soil to grow in, being more subject to damp off in large pots. Drain them well, using soil similar to that used for Cinerarias. Put both in pits or frames, facing northwards, and give air freely, taking the lights completely off the Primulas during the day; but do not allow them to get saturated with rain. In very bright weather, a piece of old fruit tree netting placed over them will be useful to break the sun's rays; but will not obstruct the light as a mat would do. If too thick material is used the leaves get drawn up weakly, in which state it is impossible for them to flower as they ought. Sow Mignonette now in 4-inch pots filled with soil such as that recommended for the last-named subjects. Put half-a-dozen seeds in each, covering them slightly; place in a cold frame and put on the lights until the plants are up, after which they should be taken off for some time so as to keep them strong and sturdy for the winter, never allowing them to want water. Stove plants will now be fast maturing their wood, and should have more sun and air, but here the latter must never be admitted, even at this time of the year, in anything like the volumes that greenhouse subjects require. In this respect most growers commit serious error, for if stove plants—especially such as come from the hottest countries—are too much exposed to cold currents of air, it destroys all their energies. With stove plants a maximum of light, which may be obtained by keeping them elevated near the glass during the whole of their growing time, imparts strength and substance to the wood as it is formed, and does away with the necessity of subjecting them to treatment that stops all growth during the remainder of the season. A much shorter period of rest will suffice for these than with greenhouse subjects.

Orchids.

Dendrobiums that have completed their growth should be placed in a temperature of from 5° to 10° lower than than that in which they have been allowed to grow, and should have more light and air to ripen them. The majority of Dendrobiums like a high temperature while growing. Many of the East Indian plants will be growing freely this month, and should have unremitting attention, as regards heat and moisture. In order to prevent thrips injuring the centre growth of Vandas, Saccolabiums, Aërides, and many others, dust them lightly with Pooley's tobacco-powder, which does not hurt the plants. Cattleyas that are growing freely must receive more moisture till they have completed their growth; afterwards less moisture and a dry atmosphere, to allow them to become hardy and withstand the long dark and damp days of autumn and winter. Cœlogyne cristata will require more water as the growth advances. Syringe very slightly till the bulbous part is formed. A great many of the Oncidiums that require more heat will grow freely if placed at the warmest end of the Cattleya-house and supplied freely with moisture. Odontoglossum Bluntii, O. Pescatorei, and many others that do well in a low temperature, should be kept as cool as possible without direct draughts. Disa grandiflora, while flowering, should have just sufficient water to keep the roots plump. Calanthe Veitchi and their varieties must be plentifully supplied with water. Pleiones that have developed their bulbs must not receive so much moisture as hitherto; on the contrary, gradually discontinue watering till they get quite dry. Orchid flowers will be as scarce this month as at any time during the year. Mesospinidium vulcanicum and Odontoglossum Roezlii, if grown in large quantities, would keep up a supply for the present—the former bright pink, the latter white, with dark purple spots. When grown strongly, almost all the Odontoglossums are perpetual bloomers, but they like the heat of a Cattleya-house in which to grow.—E. Culley.

Flower Garden and Pleasure Ground.

During the unprecedentedly wet weather which characterised the greater part of last month, the bloom of most kinds of bedding plants suffered very severely. Many varieties, however, of bedding Pansies and Violas, more particularly the latter—of which the hardy Viola cornuta may be considered as the type,—proved striking exceptions, as wet and cold did not appear to detract much from their beauty. The variety known as Perfection seems to be one of the finest of this really charming family. The flowers, which are of a pale blue or violet colour, are borne upon stiff erect stalks; and are produced in great profusion. They supply a shade of colour which is of the greatest value in the flower garden. Some of the varieties are better adapted to the purpose of spring than summer bedding, but the variety in question, together with Enchantress, Magnificent, and one or two others, do not commence to flower until May, and may justly be considered as summer bedding plants. If the stock of such plants is limited, they may now be propagated by cuttings, in the same way as has been recommended for Verbenas and other bedding plants; but, if the stock of them is considerable, their multiplication may be deferred until the end of the season, when they may be increased to any desired extent by division. If not already done, spring bedding plants, such as the Daisy, Hepatica, Myosotis, and Primrose, may now be increased by this means. Many kinds of hardy herbaceous plants, such as the various and beautiful Phloxes, Pentstemons, Lychnis, &c., may also be increased by cuttings, as well as some of the finer Saxifrages, including longifolia and Cotyledon. Side shoots of moderate growth should be selected for cuttings, rejecting exhausted flower-stems, as well as gross shoots. These cuttings may be inserted under hand-glasses placed upon a partially-spent hotbed, or they may be struck in pots in a close frame along with other bedding plants, and allowed to remain in the pots until spring, or they may be planted out as soon as rooted in beds, in any favourable situation where they will be likely to become well established before winter sets in. Now that there is a prospect of finer weather than was experienced during the greater part of last month, let every possible means be used to preserve and prolong the beauty and attractions of flower gardens and dressed grounds for the longest possible period. The season for effective display, in the flower garden at least, is of comparatively short duration, and no neglect should be permitted to curtail still further this period. All parts of the garden should have prompt and careful attention; tying, staking, weeding, and watering should be thoroughly attended to; and injury likely to result from high winds should be guarded against, whilst any damage unavoidably sustained through violent thunderstorms and heavy rainfall should be promptly repaired. The growth of climbing plants, of all kinds, must be carefully regulated. The many improved varieties of the Clematis will now be in full beauty, and are of the greatest value for the purposes of covering ornamental arches and wire or trellis-work of all sorts. The flowers of these plants vary in colour, but blue or violet shades prevail, and these contrast well with the blooms of standard and pyramidal-trained Pelargoniums, which are of many shades, from the brightest scarlet to the purest white; and all such plants will require occasional attention in regulating and tying out their shoots, and removing decayed trusses of blooms, &c. Perpetual Roses must be encouraged by copious supplies of manure-water, in order to obtain a second display of bloom. These plants may also be mulched with rotted manure, if this can be applied without having a repulsive appearance, and this can generally be accomplished by a covering of tan, or the mowings of the lawn. Remove the flowers as soon as they appear on beds of tricolor Pelargoniums, as this greatly improves their appearance, the bright-coloured blooms detracting much from the brilliancy of the foliage, whilst, at the same time, their removal greatly encourages the healthy development of the plants. The growth of such plants as the Golden Feather Pyrethrum, when it is used in carpet bedding, must still be pinched in. This very valuable plant still holds its own, and is far from being supplanted by the Stellaria graminea aurea, as was expected by some planters. The system of carpet bedding also appears to gain increased favour, and many excellent examples of this style of ornamentation are now to be seen in many garden establishments—indeed, the present season has been more favourable to the development of ornamental foliage than to flowers, and proves the value, during some seasons, at least, of sub-tropical and carpet bedding. The decaying flower-stems of early-flowering herbaceous plants should be removed, unless seed is desired, and this is seldom the case, as most of these plants are readily increased by cuttings, or, rather, by divisions. Seeds are, however, sometimes secured, with the view of obtaining new varieties; but, to justify a reasonable expectation of obtaining improved kinds, artificial fertilisation must have been previously performed. It is generally found that if seed be saved from even the finest strains of our annual flowers, such strains will, sooner or later, become deteriorated. The old proverb, which says that "ill weeds grow apace," applies, to some extent, to annual flowers, as it somehow happens that the worst flowers are almost always the most productive of seed. There are, however, at least two methods by which almost any strain may be improved—that is, by artificial impregnation, or careful selection. The first method is, of course, most likely to be successful, but its application is tedious, and requires more time than can always be devoted to it; but much may be done by the latter system, and now is the time to look carefully over beds or clumps of various kinds of plants, in order to mark any trusses of bloom which may be of superior merit, with a view to its producing seed. By pursuing a system of this sort, from year to year, most varieties of flowers or vegetables may be raised to the highest possible point of excellence.—P. Grieve, *Culford, Bury St. Edmunds.*

Indoor Fruit Department.

Vines.—Wasps and large flies are frequently very destructive to Grapes, where they are hanging ripe on the Vines. They not only destroy whole berries, but make small holes in others, necessitating their being cut out, and spoiling the appearance of the bunch. Hamburghs and other somewhat thin-skinned kinds are generally attacked to a greater extent than thick-skinned varieties. In order to keep them out of Vineries, in which there is ripe fruit, nail some closely-meshed netting over the ventilators; but, where the ventilators are so arranged that the netting cannot be used in this way, small bags should be made of it, in which the bunches should be encased. This generally proves a safeguard, though not so effectual a one as the other. Grapes are often put into paper bags to keep them from such depredators, but that is a bad practice, as the berries often decay when air cannot reach them, and unless the paper is removed daily—an operation which seriously damages the bloom—numbers of berries may be rotten before the evil is detected. Bottles containing sour beer are hung up amongst the bunches as traps, but for one wasp or fly that enters them two keep out. Do not let the surface soil in Vineries, in which the fruit is ripe, become dust dry. A little moisture in the atmosphere does little harm, so long as there is a circulation of fresh air, and the dust does not rise and settle so freely on the bunches when the soil is a little damp as when it is dry. When the Vine borders are finally watered the soil may be raked finer than it has hitherto been, in order that its surface may look tidy for the remainder of the season.

Pines.—Lose no favourable opportunity of admitting a free circulation of fresh air to all Pine plants in active growth, so as to keep them dwarf and stocky. Plants, which are drawn up tender never do well throughout the winter. Look over the first potted suckers, and water such as are dry and have their roots appearing on the outside of the ball of soil. Do not be in a hurry to expose them too much to sunshine, especially if they have been kept somewhat closely shaded while making roots. Old plants will, however, bear and be benefitted by fuller exposure to the sun now than earlier in the season; care should be taken, however, not to allow the leaves to become brown, or the completion of their growth may be retarded.—J. Muir.

Forestry.

Look over young plantations in order to see that none of the trees are overgrown with Furze, Bracken, or vigorous-growing weeds. It is not, however, necessary to clear away all the natural growth from the stems of the plants, so long as the leaders and side branches have room in which to develop themselves, a moderate growth of vegetation round the necks of young trees rendering them not nearly so liable to be damaged by hares and rabbits as they otherwise would be; besides, in exposed situations, it acts as shelter and protection against severe weather. See that ornamental deciduous trees and Conifers planted last season are not suffering from being too tightly tied to stakes; the pinching back of contending leaders and foreshortening any lateral branches that are out-growing their neighbours must also receive attention. Where ground game is numerous and the plants are not protected by wire netting, Birch spray and Heath tied round the necks of the young trees will last good for two or three years, or the straight hard shoots of Rhododendrons put in round about the stem of the plants are equally good as a safeguard. Ornamental shrubs must be kept clear of weeds by hoeing round the plants for the first year or two after planting, but, after they have become fairly established, the herbage may be left. If the ornamental portion of wood "rides" is not already trimmed, this work should be done as soon as possible, as it adds a neatness and finish to their appearance, and, moreover, prevents the Bracken from being broken down on the verges and glades through heavy rains and snowstorms in winter. If the mowings of the rides are not required for litter, a thick layer of them may be spread over the roots of specimen trees as far as the branches spread. Shorten back any duplicate leaders on deciduous and other trees in the nursery; clear their stems of superfluous shoots, and foreshorten any overgrown side branches; if this work is properly attended to when the trees are young little attention to pruning will be required after they are planted out. Hedges that are usually trimmed twice during the season will have had the first trimming and cleaning finished ere this. Cut Ivy off trees and grub up its roots; cutting it off at the surface of the ground only encourages it to grow afresh more vigorously than before. A sufficient stock of cordwood, oven, and fire-lighting fagots should now be got ready for winter use. Oak and Beech is preferred to any other kind of wood for safe and clean burning; Oak tops make the best oven fagots, and Oak underwood the best fire-lighting fagots; the latter should be cut in winter, and should be thoroughly dry before they are tied up.—George Berry.

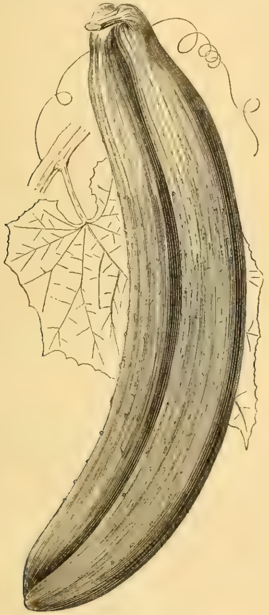
Hint to Fruit-eaters.—M. Garnier, a French physician, who gives details of a death from eating too many Strawberries, in one of the French medical periodicals, the "Lyons Medical," takes the opportunity of pointing a moral by giving some advice as to how to eat Strawberries without injury to the health. He recommends persons who can eat this fruit in its natural condition with impunity, not to eat many at a time, and is of opinion that a certain amount of sugar singularly facilitates their absorption and, still more, their digestion. The juice and scraped rind of a Lemon mixed are sometimes useful for the same purpose, but generally this mixture, even if compounded with powdered sugar, does not agree with every one. It is the same with Strawberries and cream. M. Garnier thinks it better to sprinkle the Strawberries with a good and strongly alcoholic wine. Debilitated stomachs should not venture on Bordeaux wine; Kirschenwasser, rum, or cognac being, in his opinion, preferable. His last recommendation is never to eat Strawberries alone; they should always be accompanied with other food, which should precede them in the digestive tube. All that has been said of Strawberries applies with greater force to Raspberries, which are still more indigestible; but is not true of Cherries, Currants, and Gooseberries, inasmuch as in their case chemical decomposition is much slower.—"London Medical Record." [There must surely be some mistake here. If people die from eating good Strawberries, deaths may be expected to result from pure air, sweet flowers, or anything else that is usually considered harmless. The advice to season Strawberries with rum or cognac is pernicious nonsense; moderation is a better and cheaper preventive.]

The Garden Party in 1875.—The garden party which was to have been given at Holland House on Wednesday, was postponed till Thursday, when, owing to the still unfavourable weather, it took place in-doors. This information we owe to an Irish correspondent, who adds, that had the garden party at Holland House been given in the garden on either of those days, it would have been entirely a water party on shore.—"Punch."

THE KITCHEN GARDEN.

SIAMESE TWIN CUCUMBER.

Some time ago I sent you a Cucumber (Rollisson's Telegraph), which you thought sufficiently curious to be worthy of an illustration. I now send you another monstrosity (also Telegraph). In my experience, I have never seen a twin Cucumber come to such perfection as the one sent; they have generally died off at an early stage of their growth. The flowers, which have, unfortunately come off in packing, were quite perfect up to the time when the fruit was cut. I have now been growing Cucumbers under most favourable conditions for many years, and the result of my experience is, that no variety in cultivation surpasses Rollisson's Telegraph for productiveness and general utility. For the last ten years I have made it my standard fruit, only growing others from time to time to test them against it, and always with the result which I have stated. Last autumn Messrs. Garraway & Co., of Bristol, sent me seeds of a new sort to try, named The Friar, which was a good sample of the Sion House improved strain, but I found it inferior in fertility and size to Telegraph as a winter Cucumber, and its culture was abandoned, as has also been that of many others which did not come up to my standard. As to my method of cultivation, it differs but little, if at all, from that adopted by any experienced gardener who has the necessary accommodation at command. For the summer supply I raise the plants from seed sown early in spring; and, for winter, I generally raise my plants from cuttings struck early in the autumn, as I prefer them raised in that way for winter growing. By this means I find no difficulty in having a supply of Cucumbers all the year round. A. Pettigrew.



Siamese Twin Cucumber (15 inches long).

Cardiff Castle.

[Twin Cucumbers are by no means uncommon; but that represented in the accompanying illustration is the most perfect specimen of the kind we have seen; in quality it was as good as single fruit of the same kind.]

Japan Radish.—M. Lille, seed merchant, of Lyons, has sent out a new Japanese Radish. It is the Daïcon, a plant cultivated in all parts of Japan. It appears that its roots often reach nearly a yard in length and a foot in diameter. The colour is a milky white, tinged with yellow; the very thin skin is easily removed, and the compact juicy flesh has the delicate flavour of our best small Radishes. M. Jean Sisley, who obtained seeds of the Daïcon from Dr. Henon, states, in an article in the "Cultivateur Lyonnais," that another esteemed variety, the Satsuma Radish, has not yet been introduced, but deserves to be. In Japan they are prepared for the table in various ways—baked, sliced very thin in salads, or preserved in salt. In the latter form it is used to season boiled Rice. No doubt these Radishes are allied to the large and tender Chinese Radish, which Chinamen cultivate so much, both when at home and in other lands.

Snowflake Potato as a Long-keeping Variety.—Among the hundred or more varieties of Potatoes which I have tested during the past ten years, none excel the Snowflake as a late keeper—in fact, I do not know that there is a better sort for any season. But I am reminded of its excellent keeping qualities at this time, as all the more common and older varieties, and especially the Early Rose and similar well-known sorts, soon wither and become worthless for use in spring, or as soon as warm weather sets in; but my Snowflakes are now (June 15th) sound and firm, and of such excellent quality that we are in no haste for new Potatoes, as we would be were it not for this very promising new sort. If it continues to be as good in the future as my one year's experience with it leads me to hope, then I shall place it very high on the list of excellent sorts.—"Moore's Rural."

Tomatoes as a Farm Crop.—Within the memory of many, Tomatoes were almost unknown. A few were grown in gardens as an ornament under the name of "Love Apples," but scarcely anybody thought the food fit to eat. This vegetable has fairly won its way to popular favour, as may be seen in the fact that a majority of young children like Tomatoes the first time they eat them. Now thousands of acres are grown for market round all American cities, and a few plants are found in most farmer's gardens. Large establishments are engaged for weeks canning Tomatoes for winter use. The prices paid by these establishments are usually low, as they take the surplus of the crop after prices for the earliest have declined. Taking it altogether, the crop is generally profitable, even on high-priced lands near cities where it is usually grown. It will bear transportation some distance with careful handling, and is a crop which many farmers might profitably cultivate on a small scale. It does not demand very rich ground, nor, as a field crop, any better care than should be given to corn or Pototoes. A larger average yield can be got in Tomatoes than in Potatoes, and the average price is generally higher.—"Cultivator."

Preventing Hollowness in Potatoes.—Large tubers, we all know, have a tendency to become hollow, while small ones are rarely affected in that way. One year there was a drought extending well into the season, it was found that tubers dug at the close of the dry period, and grown under its influence, were very materially different from those of the same crop, dug after the rains had set in, and had advanced the growth rapidly. The tubers were more than double in size, and it was then noticed that there was an irregularity of shape to some extent; protuberances also made their appearance; while the inside showed hollowness. The inference was that the growth was unnatural. This was to be avoided. A steady, medium growth was then aimed at; and it was secured by close planting. Such planting was found to give uniformity of size, and fewer small Potatoes. Drainage and frequent working of the soil greatly aided, especially during drought. Deep, mellow tillage was also an advantage, as was also early planting. All these precautions had uniformity and moisture for their object as well as the admission of air; and deep planting secured coolness and a more equable temperature. In this way sound medium-sized tubers were produced free from hollowness. The principle, probably, can be applied with success to all large Potatoes. The distance of planting must be governed by the habit of the variety.—"New York Tribune."

Snowflake Potato.—I have this day (July 26th) tasted this new Potato, and I am pleased to say it is by far the best American kind that has come under my notice. Its flesh is milky-white; the skin firm and cracking—a good sign. The crop is not heavy, but good.—R. Gilbert, *Burghley*.

New Varieties of Peas.—Of these such vast numbers have been added to catalogues of late that it is almost impossible to know what to select. Some of the new kinds are certainly great acquisitions as regards size and flavour; but, on the other hand, they do not bear comparison with the older varieties so far as their producing qualities are concerned. I think it is always best when you have discovered a good kind to be content with it, and after some years' trial I am still inclined to adhere to the following:—Sangster's No. 1, Huntingdonian, Veitch's Perfection, Champion of England, Ne Plus Ultra, and British Queen.—Rambler.

THE FRUIT GARDEN.

THE HAUTBOIS STRAWBERRY.

It is to be regretted that a Strawberry of such peculiar flavour as the Hautbois should be neglected in favour of finer-looking fruit. The genuine Hautbois is, no doubt, still to be found in old gardens, and would repay any attention bestowed upon it. Is there any foundation for the belief that the Hautbois is diœcious, bearing male and female flowers, on different plants? This fact (if correct) would account for the occasional unfruitfulness of beds from which one kind may have been accidentally omitted. A Constant Reader.

[The neglect into which the Hautbois has fallen is doubtless due, in a great measure, to the fact that size has more weight with proprietors of gardens than it formerly had. Fruit is grown now almost as much for the fine appearance which it presents as for eating; but, I have no doubt the time will come when the Hautbois will again come into favour, and, probably, improved both in point of size and productiveness. This may reasonably be anticipated, as, in both points, Rivers's Royal Hautbois is far superior to the old Hautbois that used to be grown thirty years ago. With the exception of the old Alpines, the Hautbois Strawberry is less particular as to soil than most of the English and Continental Strawberries, now so generally grown. Of course, as a rule, the best result will be obtained on the best soil, but I have seen fine crops of Hautbois grown on land too light to be profitably occupied with other kinds. Light land, if it is well manured, and made thoroughly firm before planting, will do very well for the Hautbois, but mulching and watering in dry seasons must not be neglected. A very good way of growing them, is to plant them in beds, say three rows in a 4-foot bed, and the plants about a foot apart in the rows, with alleys 2 feet wide between the beds. This will give room for gathering the fruit, and also allows space for the production of strong runners for making new plantations. It is not advisable to allow the beds to continue in the same place longer than three years. Early in August is the best time to plant; although, when the beds cannot be properly made then, the runners may be planted 3 or 4 inches apart in nursery beds, lifted with balls, and planted out finally the following March. I should recommend this course in preference to planting in ground ill-prepared or not properly consolidated. The Hautbois Strawberry has often been called diœcious, but botanists, I believe, do not consider that character to be fully established. No doubt some of its flowers are often defective, or what is popularly termed "blind," but the same thing occurs occasionally amongst our best English hermaphrodite varieties. This defect can generally be removed, too, by careful selection when obtaining runners, which should only be taken from prolific plants. Planting in very rich soil or highly-manured land, especially if recently trenched and not allowed time to settle and become firm, will, by inducing over-luxuriance, often produce "blindness" in the flowers, or, in some cases, prevent flower-buds being formed at all, the whole efforts of the plants being confined to the production of foliage only. This, however, is usually the result of some error in management, and the observant cultivator scarcely makes the same mistake twice.—E. Hobday.]

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

A Chapter on Strawberry Culture.—In order to grow Strawberries well, the following points want attention:—Planting out of small pots the first week in August; digging the ground deeply, manuring it heavily, and treading it firmly. Success then is certain.—R. Gilbert, *Burghley*.

How to Colour Indoor Peaches.—I have in a Peach-house here two trees, one Bellegarde and one Violette Hâtive, covering a trellis 30 feet by 14, each bearing over fourteen dozen fruits, many of which weigh 8 ozs. I took especial care to get as many as possible on the upper side of the trellis, consequently they are well-coloured, and, when looking up the trellis from an opening at the lower end, the large crimson fruit resting on a carpet of dark green foliage has a fine effect.—H. J. C., *Tadcaster*.

Frogmore Late Pine, the Best Strawberry to Resist Wet.—The rains this season have tried the mould-contracting and wet-resisting properties of every variety of Strawberry to a greater extent than usual. The Pine kinds have best resisted the wet, and Frogmore Late Pine the best of all. Trollope's Victoria was soon rendered worthless, as was also Vicomtesse Hericart de Thury. British Queen did her best; but, being heavily loaded, was bent down to the ground, and many of the fruits were spoiled. La Constante withstood the wet well; but, being a dwarf grower, it at last overcame it.—N. H. P.

MY TOWN GARDEN.

In matters connected with gardening it is not difficult to prove that a great deal may be done under the most unfavourable conditions. By way of experiment, I selected for my garden a neglected corner of ground which was degenerating into a rubbish place, in the centre of a manufacturing town, with chemical works on all sides—such a place as would be about equivalent to the back-yard of an average house—and at the expenditure of a few shillings have succeeded in obtaining daily, throughout the year, and at least a month before their appearance in the market, fresh salads, besides forced Rhubarb, French Beans and herbs, such as Mint, Parsley, &c., in large quantities. The means used are simple enough, and within the reach of anyone who has a moderate-sized back-yard open to the sun. The first step was to obtain some Grass sods, and mix them with stable manure, the second to get some old preserved-meat boxes, knock the bottoms out, and put in their places a sheet of glass, leaving, however, a few of the boxes, with the bottoms in. The boxes with the glass bottoms, which we converted into roofs by the simple process of turning them down side up, were at once promoted to be our cold greenhouses, and under these live and flourish, in all weathers, Mustard, Cress, and Lettuces. In the spring, a pile of fresh manure, a few Vegetable Marrow seeds, and one of our portable greenhouses, which are, let it be remembered, "tenant's fixtures," give us Marrows before they have reached what may be termed a reasonable price in the local market. Of course, when the plant gets too large for its habitation, we let it out, and at the end of the season, when the frosts come, we dock it and put it in again; by this means we get a few Marrows when everybody else has none. The last experiment is to make an early sowing of French Beans in small pots, under one of our "tenant's fixtures," and plant them out as soon as safe. By this means we have plenty, whilst they are sold by the inch in the markets. Before we learnt better we bought all our forced Rhubarb; we now simply dig up a few roots at intervals, commencing early in November, and place them in a box of soil in the cellar. When we have got a fair supply of each we replace them in the garden in a waste corner, to live or die as best pleases them. They generally live, however, and we have not only plenty for ourselves, but have been obliged to give splendid Rhubarb away about January when the digging-up process has been done too vigorously. Being of opinion that spring Onions are necessary for salads, and finding that they are not so easily grown to be good for twelve months in the year, we gave them up as hopeless, and for years have put in, at intervals of about a fortnight, some two dozen Shallots. These will start at once in almost any weather, and we keep them covered with one of the boxes with the wood bottoms so as to be completely in the dark. When 2 or 3 inches high they are brought out as required and split up into tender blanched spring Onions. Our Onion bed, which supplies our table all the year round, is 3 feet long and 2 feet wide, and is covered by two boxes, which, when complete, cost us only the small sum of sixpence some years ago. After steady experience year after year with this style of protection we find that there is always a tendency to knock one or two more together, and to work all to the fullest extent; and our neighbours with glass houses and hot-beds are glad to borrow salads from us when they cannot grow them themselves. We tried some glass frames and ground vineries, but they were more troublesome to get at, and did less work for the space they occupied as, when one of the boxes was wanted and none were quite empty, we could sow the seed for it, and cover it with straw for a few days. Practically, the hotbed frames are so much more trouble to get at and keep in order that they are very little used. Our friends say our garden looks disreputable; but, the simple fact is, it pays a large profit on the rent and expenses, and is, in addition, a great convenience. We are now building a stove and greenhouse, but I fancy they will exist simply as ornaments, and that the greater part, if not all, of our market work—if it may so be called—will still be done under the boxes, with or without top light. The best size we find to be about 2 feet by 16 or 18 inches, with a rib nailed across the top for a handle; larger than this are unwieldy, and smaller do not hold enough. We average about two each, steadily working with Cress, Onions, Mustard, Marrows, and sundry miscellaneous subjects; three or four with French Beans; the same number with Lettuces; and, when not on regular duty, they are set to work raising seeds and plants, which we should otherwise have to buy. By the way, there is one neglected vegetable which would be more appreciated if more generally known. When our neighbours cut the heads of their Curly Greens we beg the stalks, pull them up, and plant them close together under an old packing-case. The shoots, tender and blanched, are, in my opinion, second to no vegetable to be obtained in the same season; they cost nothing to grow, and take up ground which is at the time useless for anything else. Before starting our portable greenhouses the garden existed, and this was as much as could be said for it, as the conditions altogether were unfavourable. Except in the hottest weather, the smoke and dirt were, and are, so great, that young tender plants have no hope of existence without help; and winter vegetables are too much flavoured with soot to be quite fit for use. The inventor of second-hand packing-cases made, in my case, a valuable discovery, although he may not have intended them for the use I put them to; and, strange to say, the old preserved meat boxes were exactly the right size for some old glass I had, so that our cold greenhouses cost the sum of 4d. each, or 1½d. per superficial foot. We have got rather proud lately, and have painted the whole set black; but, although decidedly more ornamental, they are no more useful. When an acquaintance hears me say I make a large profit out of our garden in the middle of a dirty town, he smiles a smile of unbelief, knowing, from his own expensive experience, how unlikely it is. When he sees it, the smile disappears, and he is converted, as an American would say, "right away." Of course there is little or nothing new in this; but the matter altogether is one well worthy of the attention of all; and I record, therefore, my experience, which has been thoroughly successful with the simplest and cheapest possible appliances, within the reach of the poorest cottager. It will, of course, be understood that the heavy cropping during the whole of the twelve months, under the hand frames, is only to be got out of ground which is kept in good condition. Twenty crops of salads cannot be got out of the same ground in one year unless it is constantly assisted with manure.

Warrington. THOMAS FLETCHER.

Large Aucuba in the Royal Botanic Gardens, Regent's Park.—I have sent you a photograph of our large Aucuba, which, in April last, was loaded with bright red berries. It measures 13 feet 8 inches through its largest diameter, and 10 feet 7 inches through the others, and the extreme height is 8 feet 10 inches. I am unable to say when it was planted; but, when I first came here, in 1842, it was, if I remember rightly, a large bush. About five years ago, I first placed the male plant (then only a few inches high, it is now over 2 feet) in its midst, raised on a short post nearly to the top, so that the pollen might fall well over the plant, and since then we have each year had fine crops of fruit, and raised from the berries many hundreds of plants, besides distributing quantities of berries to our friends; 300 went to Australia last year, but of these I have not yet heard the result. Of the plants raised from the berries, more than half turn out to be males, and these being planted about the garden, most of the old original Aucubas every year, more or less, show fruit. The leaves of the young plants are very varied, both in form, colour, and markings.—W. SOWERBY. [The photograph showed a splendid plant of the ordinary spotted-leaved Aucuba—so fine, indeed, that we had intended to have had it illustrated, but the difficulty of showing, in a satisfactory manner, the plant loaded with fruit, is greater than we anticipated, and has prevented the fulfilment of our intention.]

Flowers in Hospitals.—The attempts made to decorate and enliven the wards of hospitals with flowers is deserving of liberal support. Already several of the hospitals are supplied during the summer months with flowers through the aid of the Flower Mission or by private benevolence. But much needs yet to be done. If those rich and highly favoured persons who, in their country and suburban residences may be said to repose on beds of Roses and to breathe ambrosial odours in place of fog and smoke, consider what gratification they derive from their gardens, they may get some conception of the pleasure with which the poor sufferers in hospitals regard even a tiny nosegay of wild Roses. We feel sure that no further appeals will be necessary to have this want fully supplied, and a speedy response may confidently be looked for.—"Lancet."

THE FLOWER GARDEN.

CLIMBING HYBRID PERPETUAL ROSES.

No plants look more beautiful on wire trellis-work than Roses and Clematises planted alternately; and, in this way, a grand display of flowers may be maintained from May to November. The following varieties possess brilliant and striking colours, and will grow from 9 to 10 feet high, viz., General Jacqueminot, Camille Bernardin, Knight's climbing Princess Louise Victoria (blush, shading off to peach, and a free bloomer in autumn), and Louisa Wood (brilliant carmine, and also a free autumnal bloomer). Many other varieties might also be used; but, for general effect, they cannot be surpassed. Before they are planted, the ground should be dug two spits deep, at least, and plenty of old rotten manure should be forked into it. As soon as they have made long shoots, which they will do in one season, pull them down as low as you can in the month of March, and tie them fast to small stakes, as directed for Noisettes. In May, when it is found that shoots have pushed at every joint pointing upwards, they may be raised up, and fastened to the trellis-work. Whenever a shoot promises to grow long, encourage it by keeping it in an upright position, when it will bloom in the autumn, if the variety is a true Hybrid Perpetual; instead of pruning it back, keep it its full length, and bend it down in the month of March, raising it up again in May, and in this manner proceed until as much of the trellis is covered as may be wanted; after that, conduct the pruning on the spur system, cutting occasionally clean away any superfluous wood, and always encouraging the growth of long shoots, when they can be found. These long maiden shoots, after having been bent down for a season, in order to cause them to throw out side shoots, always yield the best blooms; if no room can be found for them against the trellis, cut away the old shoots, and substitute the new ones, which are always preferable.

Pole Roses may be grown, and the shoots furnished with short side shoots in quicker time by bringing down the long shoots for a season, and afterwards raising them up again, and tying them to the pole, than by cutting them back. The long shoots become furnished with laterals, from top to bottom, the first season. There are no better sorts adapted for pole Roses than the Hybrid Perpetuals just mentioned. The rich carmine-coloured Moss Rose Baronne de Wassenaer makes an excellent pillar or wall Rose. Among kinds of Clematis that bloom in May and June may be named Miss Bateman (white), Standishii (lavender-blue or pale mauve), Lanuginosa pallida (large pure white). Amongst the best of those that bloom from July to October are Jackmanii, Rubella, and Rubra violacea. The proper time to plant them is in March. Whoever has a situation, either in front of his house, or a wall with any aspect, can grow both Roses and Clematises with good effect. The trellis on which I grow them is made of galvanised wire, and the aspect is nearly due north. Nevertheless both Roses and Clematises do well, lasting a longer time in bloom, and holding colour much longer than those grown against a wall with a south aspect. HENRY TAYLOR.

Fencote, near Bedale.

THE PRESENT ASPECT OF FLOWER GARDENING.

WHILE flower gardening in this country is in its present transition state—while we are hesitating dubiously between our adherence to the departing sensational style of bedding and our adoption of the more natural but less gaudy style which threatens to affect considerably the general aspect of our flower gardens, and modify not a little our ideas of decorative gardening—it is instructive to look back for the last twenty-five or thirty years, and note what progress has been made, and what lessons we have learned. During the above period flower gardening has partaken distinctly of the "fastness" and sensationalism of the age, and taste has often been ruled by fashion more than by good sense or judgment. Look at the "bedding" fashion, for instance, which had unrestrained run for nearly twenty years, until it was overdone; then came the surfeit, which is always the consequence of excess. The rage for bedding plants has undoubtedly done much good, however, for it stirred the hybridiser, the improver, and the collector into renewed zeal, and added amazingly to our knowledge in many things; but the advent of the bedding rage will always be looked back upon as a period in the history of gardening that we ought to be somewhat ashamed of, for it inaugurated the beginning of a war of extermination against a race of herbaceous and other hardy plants which had spread throughout the country and accumulated in many a noble private collection, but which were ruthlessly sacrificed to make room for Geraniums, Calceolarias, and the like. The writer can remember one of the most extensive collections of herbaceous plants in the kingdom, the accumulations of years, being trenched down to make room for bedding purposes. This was the time when, in gardens furnished with scores of thousands of bedding plants, you might have looked in vain for a single plant of a Lily, a Phlox, or even a Carnation; all were gone, "alike forgotten and unknown." This is a true picture; such infatuation is hardly now credible, but it is the fact. The rage for colour and contrast on a glaring scale had, for the time being, eclipsed everything else in the minds of gardeners and their employers. But, in truth, the bedding system was simply a reaction from the dull and monotonous style of gardening previously existing, when flower gardens were a kind of compromise between the botanical and the ornamental—the latter not a very prominent feature. What were called "herbaceous collections" were the rage, and to have an infinite number of species, either ornamental or not, was the highest ambition of some gardeners. We could mention private collections of the time that numbered many hundreds of species, carefully named or numbered, and by far the greater portion of which were useless rubbish, so far as either beauty, interest, or decorative utility was concerned. In respect to these the bedding epoch did good service, for, now that hardy herbaceous plants are fast coming into repute again, there is a weeding out of them, and a decided disposition to have nothing to do with any but those which are really useful and attractive; and it is to be hoped, with past experience to guide us, that we shall not again run into extremes.

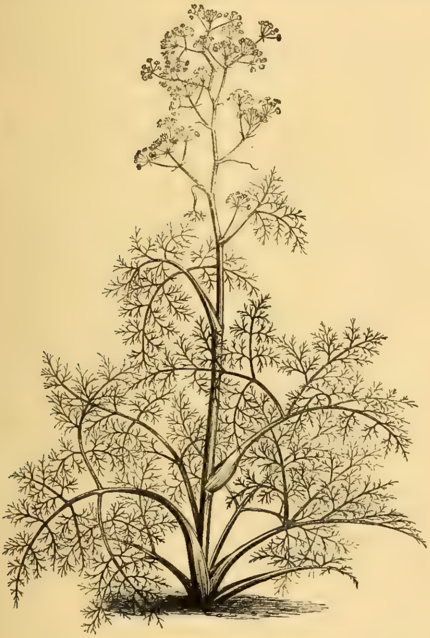
The modern bedding system is the latest exemplification of that strictly formal style of gardening which was carried to such extremes a few generations back. The true landscape gardener has emancipated himself from the trammels of artificialism; but the flower gardener has not yet shaken them off, for his formally-arranged beds, his terraces, and his parterres still indicate the school from which he inherited his ideas. The advanced taste of the present time is in favour of a simpler, more natural, and what is certainly a more truly English style of gardening than has hitherto found favour. We allude to that increasing disposition, not to do away with bedding, but to dispense with much of that formality in the arrangement of the beds, and in the general plan of the garden, which the system entails; to do with less pretentious architectural adjuncts in the shape of walls, balustrading, and vases, &c.; and to dispose of the ground in that free, informal manner, which, while it affords facilities for the display of the highest gardening taste, is still unaffected and natural, the flower garden and pleasure grounds merging into the park and woods in such a manner that one hardly notices where the one ends and the other begins. This style of gardening is less ostentatious than the other; it does not afford the same facilities for the display of wealth, and perhaps, upon the whole, the effect is less imposing at first sight; but it is lasting, and always pleasing. A grand terrace with its parterres is taken in at a glance, and soon becomes stale to the eyes of those who see it continually; and it is unwillingly conceded that the owner prefers to take his pleasure in his woods and parks, which are more congenial to his tastes, and is content to keep his grand parterres for show, having no very clear notion for what other purpose they were made.

But let us try to describe actual examples of the two styles of gardening referred to. The first is an Italian garden of the most elaborate description. It is laid out in front of a fine mansion, situated on a gentle slope, which terminates at the margin of a lake some distance off. The house is fronted by two terraces, one under the other, the upper terrace also flanking the ends of the house, and the whole forming a square, enclosed by the usual retaining walls, and profusely furnished with vases, balustrading, &c., of a massive and imposing order; and beyond is the park. The occupants of this expensive and pretentious enclosure, which is some acres in extent, are one or two fountains; a great variety of flower beds, arranged in geometrical order, and furnished with bedding plants and shrubs, and the usual formal gravel walks and Grass margins; with here and there a Yew, a Juniper, or a Box tree perhaps, arranged with that due regard to uniformity and balance which the style is thought to necessitate. And yet, after all, it is only a theatrical scene, without real interest; a look takes it all in. It is not a garden to be walked in, and its beauties have not to be explored, for they are not very varied, and are spread out before you, like the flowers upon a carpet. It is, in fact, a garden to be glanced at, and nothing more. Between it and the park, and lake extending beyond, there are no gradations; its limits are terminated abruptly by a dead wall, which, to the outside spectator, looks not unlike the boundary wall of a fortress, so strange and isolated does it seem to be from the natural surroundings. Such, as accurately as can be delineated by the pen, is the modern Italian flower garden. We turn now to what may be called an example of the semi-natural style, so far as contrast is concerned, as instancing the direction in which the free taste of the present time is tending. The site and the situation are much the same as those before described. The mansion stands upon a rising ground of considerable elevation, with an undulating ground before it, and a river in the distance. The garden front and ends of the house are also surrounded by a terrace, but without the retaining wall and balustrading. It is simply a broad gravel walk, with wide margins of Grass on each side, and a border of mixed flowers next the house. From this terrace a deep and well-made Grass bank slopes gently down on the east side to a level extent of ground laid out as an American garden, and planted freely with Rhododendrons, Azaleas, Kalmias, &c., hardy and peat-loving herbaceous plants, including Lilies, Hollyhocks, Delphiniums, &c., which rear their heads in the recesses and corners formed by the shrubs, and on the west side to a garden of Roses, Carnations, herbaceous plants, and mixed shrubs, the background of both gardens being well supported with trees of an appropriate character. In front the slope terminates in a second broad gravel terrace, which stretches the whole length of the mansion and the flanking gardens just described, and is supported on its far side by a well-proportioned balustrading, which overlooks, from a lofty height, the flower gardens and pleasure grounds that extend below, without the sign of a boundary line, until they are lost in the woods beyond. Yet, though anything like formality or uniformality in the general plan of the ground has been avoided, or rather disregarded, neither floral decoration of a high order nor geometrical design is wanting; but all of these are not spread out under the windows of the mansion and nowhere else; nor are they the only features which attract the spectator, who discovers other objects of interest in his perambulations besides flower beds and bedding plants. Trees, groves, and lawns, with groups of shrubs, Roses, &c., and sloping banks intervene to partly conceal the flower beds interspersed throughout the grounds in appropriate situations. Not the least attractive features of such a garden are the ample lawns, well furnished with a varied selection of noble trees and shrubs, and the winding walks that traverse the patches of natural bush here and there, and which would lead the traveller into the woods or park before he was aware he had passed out of the well-cared-for garden. This, we submit, is a picture of a garden such as finds favour with many modern landscape gardeners and modern taste, and it is not too much to state that in such a garden only is it possible to follow out that free and natural style by which the most pleasing effects are produced, the greatest diversity of interest afforded, and the most lasting pleasure conferred.—"Field."

The "Water Convolvulus."—Some time ago you were asked what was the proper name of a flower locally called "Water Convolvulus." A specimen of it was not sent to you, but I wrote suggesting that it might possibly be the Frog-bit, which is rather a showy water plant. Lately a friend sent me an aquatic flower to name for him. It was without doubt the Hottonia palustris—Water Violet or Featherfoil. I never saw it growing, however, nor can I find it in any list of Cumberland or north country plants. Its foliage grows under the water, the flowers alone rising above the surface. They are of a beautiful lilac colour, of the shape of those of a Primrose—to which group of plants it belongs. It is most likely that this was the plant enquired about. The suggestion that the Water Lily was meant is absurd, as there is no comparison between the two; both the yellow and white are too well-known to be mistaken for anything else. I should be much obliged for some seed of the Hottonia from any of your correspondents who may have some to spare.—J. Gillbanks, *Whitefield House, Mealsgate, Carlisle.*

FERULA TINGITANA.

Ferulas are among the finest of the umbelliferous plants that have so long remained unnoticed in our botanic gardens, without their great value for garden embellishment being recognised. This is one of the best known and most valuable species, very elegant in habit, and as vigorous as it is graceful. It takes several years to form the strong tufts, which all who have seen them so much admire when bursting into their stately verdure in spring. The best way is to plant the young Ferulas where they are to remain at first. The position should be most carefully chosen. The mixed border is not suitable, as the plants die down in early summer, and would leave blanks that could not easily be filled. The best way is to place them singly, or in small groups, a little without the margin of a shrubbery, or isolated on the Grass, and so placed that their verdure might be easily visible in the garden-landscape in early spring. Deep free soil should be supplied before planting, if the soil be not naturally good and deep. It would be a good plant to associate with those Daffodils, and other early-flowering bulbs, which also die down in early summer. The Ferulas are most readily raised from seed, which should be sown as soon as gathered in a nursery bed in the open air.



Ferula Tingitana.

JULY FLOWERS ON HILL BROW.

Hill Brow, or, as some call it, New Liss, is an exceedingly beautiful ridge, situated between the little village of Rake and the town of Petersfield in Hampshire—a district rich in lovely views and wild flowers of all descriptions. The plants which I am about to enumerate, and which now brighten my table, were gathered in the course of a short walk. First comes the wild Rose, with fragrance which, to me, is sweeter than the perfume of her more cultivated sister, contrasting its delicate pink tints with the lovely pale grey hue of the Succory, a plant which, cultivated in rich garden soil, is known in France as the Barbe de Capucin. Then there is the bright yellow and orange Toad Flax, whose unexpanded blossoms resemble a number of small birds perched upon the branches of a tree, and close to it stands the stately Foxglove, with its long purple fingers, relieving the brilliant bloom of the Corn Poppy. Honeysuckle, "ripened by the sun," gives sweetness to the group, while the Ragged Robin's pink sepals wave over the exquisite little blue Veronica, and its relative Germander Speedwell. The purple Ling, or, to use its more general name, Heather, nestles amongst the green fronds of the slender black-veined Spleenwort, mingled with sprays of Yarrow, whose delicate white florets scarcely serve to remind one of Achilles, though the genus is said to have derived its name from him. The true Harebell, the Bluebell of Scotland, the Herb of War, Hypericum, whose anthers, tipped with purple dots and bright yellow petals, nearly eclipse the modest Forget-me-not, and boldly challenge the great Mullein's handsome spike-like raceme of bloom, showing off to perfection those "flowers worthy of paradise," the crimson-tipped Daisies, and delicate wild Strawberry flowers. The Mallow, Wood Betonies, Bladderwort, varieties of our native Grasses, and the Pansy Violet, better known as wild Heartease, complete the bouquet, and afford a fair specimen of our Hill Brow flora. Helen E. Watney.

PLANTS IN FLOWER AT GLASNEVIN.

Amongst the great number of plants now in flower in the open air at the Royal Botanic Gardens, Glasnevin, are the following:

- Abutilon
  - vexillarium
- Acanthus
  - Schotianus
- Adenophora
  - reticulata
- Agapanthus
  - Moorei
- Alstrœmeria
  - Simsii
  - oculata
- Althæa
  - Truloviana
- Aquilegia
  - chrysantha
- Aster
  - dumosus
  - fragilis
- Begonia
  - Chelsoni
- Castanea
  - chrysophylla
- Crinum
  - ornatum var.
  - capense var. album
  - capense var. roseum
- Cypella
  - Herberti
- Desfontainea
  - spinosa
- Fremontia
  - californica
- Gentiana
  - septemfida
- Gentiana
  - cruciata
  - gelida
- Justicia
  - carnea
- Lilium
  - Humboldti
  - californicum
  - Martagon var. Catanii
  - carolinianum
  - Thunbergii, var. grandiflorum
- Limnocharis
  - Humboldti
- Linum
  - depressum
- Pentstemon
  - Cobæa
- Philesia
  - buxifolia
- Pontaderia
  - cordata
- Sollya
  - heterophylla
- Spiranthes
  - gemmipara
- Trapa
  - natans
- Yucca
  - gloriosa
  - rubra cincta
  - filamentosa
  - recurva
  - glaucantha
  - superba

David McArdle.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Crystal Palace Lobelia compacta.—This is one of the best dwarf Lobelias with which I am acquainted, being compact in growth and very floriferous. Massed in small beds, or used as a dwarf edging plant, it is invaluable.—W. M. S.

The White Musk Mallow (Malva moschata alba).—This is a very elegant border flower, pure white, and it continues long in bloom. It comes true from seed. It is also a desirable flower for naturalisation in places where it does not occur wild.—V.

Begonia Sedeni Hardy.—A strong tuft of this plant is now covered with its large and brilliant flowers on a dry rocky bank in Mr. Wilson's garden at Weybridge Heath. It has been in the same position for three years without disturbance. Opuntia Rafinesquiana, in bloom near it, is also quite hardy.—V.

Leptospermum bullatum.—This, though usually considered a greenhouse plant, did not suffer in the least out of doors during last winter; although long, it was, however, by no means a severe one here; indeed, many half-hardy plants exposed to it are now fresh and vigorous.—T. Thornton, *Heatherside, Bagshot.*

Carpet Bedding.—One of the most effective plants used for this kind of gardening at the Crystal Palace is Tagetes signatus pumila. It is not, of course, allowed to flower, but is kept closely stopped back, and presents a delicate surface of the brightest green. This style of planting is well done at the Palace this season, no flowering plants, except the blue Lobelia, being used.—P. G.

Offsets of Sempervivum triste.—"W. D. C." (see p. 84) complains that this Sempervivum throws off but few offsets. Has not situation or soil something to do with this? Here, in a rocky border, in a mixture of sandy loam and peat, a plant bought at Rollisson's in March has a family of eight out in the world, and a second brood of eight still attached to the parent. "Triste" is a misnomer for this bright Cherry-looking plant.—George F. Wilson, *Heatherbank, Weybridge*

THE FRUIT CROPS.

METROPOLITAN AND SOUTH-EASTERN DIVISION.

Middlesex.—Uxbridge District.—Apples are a good crop, but early varieties are much spotted through the rains; the two early kinds least affected are Lord Suffield and Manks Codlin. Hawthornden, Wellington, and many other varieties are badly spotted. Pears are also a good crop, but much discoloured; and several have cracked, especially the Jargonelle in the form of standards, Louise Bonne of Jersey, Crassane, Chaumontel, and William's Bon Chrétien. Apricots are a good crop, and not injured by the wet; the kinds which we grow are Moor Park and Orangefield. Peaches are a good crop, but mildew is showing itself in places; the trees generally are, however, healthy and free from red spider this season, and, if we get fine weather, will swell off the fruit well. Plums are a partial crop; those on walls, however, are for the most part good everywhere. The best on standards is the Winesour or Market Prune Plum, Victoria; and Prince of Wales and the old Violet are plentiful everywhere. Cherries are a heavy crop, but are nearly all spoilt by the rains; and in many places they do not pay for the gathering. The wet has caused them to swell too fast, and to burst. The Morello on walls is cracking equally bad. Of Gooseberries there are good crops, but the Lancashire, or large varieties, are nearly all spoilt; they have burst and rotted on the trees. The Warrington has stood the best, owing to its being a late Gooseberry. Golden Drop is good, but nearly over. Figs are good, and so are Currants; but of the latter many are rotting on the trees. Raspberries are good, though watery and deficient in flavour; and many of them have been spoilt by wet. The best sorts are the Fastolf, Antwerp, and Prince of Wales. Strawberries have suffered greatly from the wet. The wire crinoline would be very useful to use with the large varieties as the fruit would dry much quicker, and be less liable to rot. The best sorts of Strawberries are Sir Chas. Napier, Sir Joseph Paxton, and President. I have found reeds or long straw good material on which to lay the fruit in such bad seasons as this has been.—G. Brush.

Kent.—Preston Hall, Aylesford.—So far as I have seen, fruit crops generally appear to be abundant. Apples are very abundant; Apricots, thin; Cherries, Gooseberries, and Currants, abundant; Nuts, Nectarines, and Peaches, a moderate crop; Pears and Plums, good crops; Raspberries and Strawberries, very abundant. Of fruits which succeed as standards in the orchard, and which are not subject to canker, and bear well, the names are given below in the order in which they ripen:

Dessert Apples.

Quarrenden, second size
Oslin Pippin, second size
Kerry Pippin, third size
King of the Pippins, second size
Blenheim Pippin, first size
Cox's Orange Pippin, second size
Franklin's Golden Pippin, third size
Beachamwell, third size
Scarlet Nonpareil, second size
Court Pendu Plat, second size
Syke House Russet, second size
Sturmer Pippin, second size

Kitchen Apples.

Lord Suffield, first size
Keswick Codlin, second size
Cellini, second size
Blenheim Orange, first size
Tower of Glamis, first size
Brabant Belle Fleur, first size
New Hawthornden, first size
Waltham Abbey Seedling, third to second size
Northern Greening, second size
Yorkshire Greening, first size
Hanwell Souring, second size
Wellington, first size

Pears.

Williams's Bon Chrétien, first size
Fondante d'Automne, second size
Jersey Gratioli, second size
Louise Bonne of Jersey, first size
Beurré Superfin, first size
Comte de Lamy, second size

Beurré Bosc, first size
Duchesse d'Angoulême, first size
Broom Park, second size
Vicar of Winkfield, first size
Chimenette, second size
Ne Plus Meuris, second size

Plums.

Morocco
Orleans
Prince of Wales
Gisborne's

Diamond
Pond's Seedling, very large
St. Martin's Quetsche, late, and good

I have intentionally, and, I think, rightly, avoided a long list of names.—W. Bradley.

—— **Eridge Castle, Tunbridge Wells.**—Apples here are excellent, both as regards quality and crop; Apricots are about half a crop; Cherries, very fine; Currants, excellent; Figs, good—I cover with a net in April to keep off the frosts; Gooseberries, a very heavy crop, and excellent in flavour; Peaches, half a crop—we are 400 feet above the sea, and rather exposed—Peaches and Apricots, therefore, suffer with us in May; Pears, a fine crop, but want sun to thoroughly ripen it; Plums, a very fine crop; Raspberries, good and plentiful; Strawberries, abundant, rather deficient in flavour from want of sunshine; Walnuts, very good; Filberts, excellent. This is the best fruit year I can remember. To ensure good crops of fruit, the trees should not be planted in a hollow, nor yet on the top of a hill, but on a gentle slope, half-way between these two extremes; they should have plenty of shelter to protect them from high winds.—J. Rust.

Kent.—Chevening, Sevenoaks.—We have a heavy crop of the following kinds of fruits, viz., Pears, Plums, Apricots, Peaches, Cherries, Gooseberries, Currants, and Apples. Plums here hardly ever fail; the sorts which we grow are the Green-gage, Kirks, Blue-gage, Orleans, Goliath, Coe's Golden Drop, and Late Red; also Jefferson and Washington. Strawberries, which promised to be a fine crop, became stunted, owing to the long continuance of dry weather, and did not ripen well; Filberts and Walnuts are a good crop; Figs, half a crop. I may add, that Potatoes here are much diseased, more particularly the late sorts, which I fear will be a complete failure, as I find that most of the tubers are decaying.—D. Coe.

Surrey.—The Denbies, Dorking.—Apricots here are a fair crop; Apples, on both espaliers and standards, are plentiful, but small; Pears are a fair crop, as are also Peaches and Nectarines—the trees are, however, blighted and mildewed; Plums are plentiful; Figs, scarce; Cherries are a fair crop, but many useless through the wet weather; Strawberries have been good both in crop and quality; Gooseberries are a partial crop, many much cracked; Red Currants good, but, where thick in the clusters, many have rotted; Black Currants are very good; White, a fair crop; Raspberries, good; Nuts and Walnuts, plentiful. The Potato disease has made its appearance within the last few days, and promises to be bad; both early and late kinds are much affected. The rainfall for the present month has been 5·28.—Jas. Beesley.

Hampshire.—Heckfield Place, Winchfield.—In this district the Apple crop is somewhat variable, but, upon the whole, it may be termed an average one. Apricots are a fair crop, and fine in quality; Peaches and Nectarines are abundant, but will be late this season. Pears on walls are plentiful, and will be very fine, but on standards, espaliers, and pyramids the fruit is thin inideed, and will be small; of Cherries, there are good crops of all knds, more especially Morellos; Strawberries and Gooseberries have also been heavy crops, and all kinds of bush fruits have been abundant, though much has been lost through the heavy and long-continued rains; Walnuts and Filberts are heavy crops. The following fruits are amongst the best for this district, viz.:—Apples—the old Duzan, Keswick Codlin, Devonshire Quarrenden, Blenheim Pippin, Ribston Pippin, Hawthornden, Cellini, Dumelow's Seedling, Royal Russett, and Lord Suffield. Apricots—Moor Park, Kaisha, Shipley, and New Large Early. Peaches—Early Louise, Early Grosse Mignonne, Royal George, Noblesse, Barrington, Stirling Castle, Gregory's Late, and Princess of Wales. Nectarines—Violette Hative, Elruge, Roman Stanwick, Pitmaston Orange, and Albert Victor. Pears—Marie, Louise, Williams's Bon Chrétién, Brown Beurré, Doyenné du Comice, Beurré de la Assomption, Passe Colmar, Louise Bonne of Jersey, Winter Nélis, Duchesse d'Angoulême, Thompson's, Beurré Superfin, Comte de Lamy, Ne Plus Meuris, and Bergamotte de Esperen. Plums.—Orleans—Green-gage, Kirkes, Coe's Golden Drop, and Diamond. Strawberries—James Veitch, La Grosse Sucreé, Lucas, Vicomtesse Hericart de Thury, President, Aromatic, Cockscomb, John Powell, Keen's Seedling, and Frogmore Late Pine.—W. Wildsmith.

Berkshire.—Coleshill.—Apples here are plentiful; Apricots and Cherries, moderate, with the exception of Morellos, which are plentiful; Red Currants are scarce, but White and Black kinds are good and plentiful; Gooseberries are plentiful, but have suffered greatly from the continued wet; Mulberries are plentiful; Peaches and Nectarines are abundant; Pears are a good crop; Plums, a moderate one; Strawberries, fine and plentiful; Raspberries, plentiful; Nuts and Walnuts, abundant.—Henry Eckford.

—— **Royal Gardens, Frogmore.**—Crops of fruit of all descriptions are above the average in this district. Pears and Apples are plentiful, and promise to be of excellent quality; nearly all kinds do well in the gardens here. Apricots are plentiful and good. The best varieties here are Frogmore Early, Royal, Moor Park, Shipley, and Frogmore Late. Peaches and Nectarines are also plentiful and promise well. The best kinds for outdoor culture are, among Peaches, the Early Victoria, Grosse Mignonne, Bellegarde, Premier, Buckingham Mignonne, Noblesse, Walburton Admirable, and Solway; and, among Nectarines, the Murray, Violette Hâtive, Elruge, Pine-apple, and Prince of Wales. Plums are below an average crop, with the exception of Damsons, which are plentiful. Cherries have been a heavy crop, but large portions of them were destroyed by the heavy rains which we have had. The following varieties succeed best, viz.:—May Duke, Frogmore Early Bigarreau, Governor Wood, Bigarreau, Bigarreau Napoleon, Black Tartarian, Late Duke, and, Frogmore Late Bigarreau. Morellos are a heavy crop, and of good quality. Crops of small fruit have been heavy, but large portions of them have been destroyed by wet. The best Strawberries here are La Grosse Sucrée, James Veitch, Fairy Queen, Cockscomb, Sir J. Paxton, J. Powell, and Late Pine. Gooseberries are confined to a few kinds, among which are Sulphur, Keen's Seedling, Ironmonger, Whitesmith, Rifleman, Warrington, and Hedgehog. Walnuts and Filberts are in abundance.—Thomas Jones.

—— **Bearwood.**—Fruit crops hereabouts are, on the whole, good, especially those of Apples and Pears on walls; the latter are most promising, and, should we have a fine autumn, will be of a fine description. There is a good crop of Peaches and Nectarines, but mildew has now shown itself badly, owing to the heavy rains and cold nights. Ewing's mixture I find the best remedy for it. Royal Ascot and Stirling Castle are two good Peaches for out of doors. Of Apricots there is a good crop, and the fruit is of fine quality; whilst Plums are plentiful on standards as well as walls. Rivers's Early Favourite is an early and well-flavoured variety. The crop of Cherries is good, that of Strawberries heavy. The later kinds suffered much from the heavy fall of rain—in fact, all small fruits are much spoilt. The crop of Filberts is unusually large. A continuance of fine weather is much wanted for most things. The Potato disease has appeared about here in its worst form. I have never seen it so bad. From the plot of the poor cottager to the open fields—all are alike bad. I fear more than one-half of the crops are destroyed. I had dug up a fortnight back a fine lot of Rivers's Royal Ashleaf for present use, pretty well ripened, and free from disease; within a week three parts became so bad as to be quite useless. Moving too soon is a great mistake. I trust the fair weather we are having will continue, and be the means of keeping the disease from the later kinds.—James Tegg.

—— **The Deepdene, Dorking.**—Our fruit crops, both here and in this neighbourhood, have been unusually heavy. There has been plenty of all kinds of fruit, more especially Plums, Apples, and small fruit; Walnuts and Cobs are plentiful.—John Burnett.

SOUTH MIDLAND DIVISION.

Bedfordshire.—Luton Hoo.—We have most abundant crops of fruit of all kinds this year, and on the whole it is of good quality, although the recent heavy rains have, of course, destroyed the flavour, to a certain extent, of those kinds that had already ripened. The crop of Apricots is most unusual for these gardens, for I am told by an old man, who has been employed here many years, that it is ten years since there was a crop to equal that of the present year. One tree is especially worthy of notice as carrying a much larger crop than others. This tree is situated on a portion of a wall at the back of which there is a labourer's mess-room, where a fire is lit every morning and noon for cooking. This room was only placed there at the beginning of this year. I shall be curious to see if the heated wall has any influence in the way of producing a crop next year. The large crop of fruit this year is to be attributed, I think, to the absence of frost during the setting period. I am of opinion that the heating of walls to ensure a crop of Apricots ought to receive more attention than it has hitherto done. There can be no question that it is the best way to get a crop, for they do not succeed well covered with glass. I may add that the disease is very bad among the Potatoes, and continues to spread; some of the early kinds were badly affected with "curl."—R. Budd, *Luton Hoo.*

Huntingdonshire.—Ramsey Abbey.—All kinds of stone fruits are most abundant; of Pears and Apples there is a good average yield, while bush fruits and Strawberries are very plentiful. Much damage, however, has been done to the latter by the late wet sunless weather. Walnuts show a very heavy crop, and open-air Grapes a good one. Everything stands much in need of sunshine. The soil in this neighbourhood is a rather heavy loam on Oxford clay, interspersed with beds of gravel. A few of the best and most prolific fruits grown here are as follows:—Apples—Red Juneating, Red Quarrenden, Waltham Abbey, Alfriston, Dumelow's Seedling, Kentish Fillbasket, Ribston Pippin, Lord Suffield, Manks Codlin, Hawthornden, Winter Pearmain, Kerry Pippin, Fearn's Pippin, Norfolk Beefing. Peaches—Acton Scot, Noblesse, Grosse Mignonne, Barrington, and Walburton's Admirable. Pears—Jargonelle, Autumn Bergamot, Gansel's Bergamot, Marie Louise, Vicar of Winkfield, Doyenné Gris, Beurré Diel, Glou Morçeau, Winter Nélis, and Easter Beurré. Plums—Greengage, Transparent Greengage, Orleans, Diamond, Goliath, Victoria, Golden Drop, Magnum Bonum, Pond's Seedling, and Damsons. Nectarines—Violette Hâtive, Elruge, and Pitmaston Orange. Apricots—Moorpark, Hemskirk, and Breda. Strawberries—Keen's Seedling, British Queen, Dr. Hogg, Viscomtesse Hericart de Thury, Victoria, Sir Charles Napier, Elton Pine, and Alpines.—E. Hobday.

Buckinghamshire.—Wycombe Abbey.—Apricots here are an abundant crop, which promises to be fine under suitable conditions for ripening; Apples are a superabundant crop, and, consequently, the fruit is small; Pears are a fair average crop; Plums are plentiful, excepting the Golden Drop and Damsons, which are scarce; Strawberries have been very plentiful, but much injured by moisture; Cherries of all sorts are most plentiful, but the late rains have greatly damaged the sweet varieties; Peaches and Nectarines are abundant crops; Figs, where the bearing wood has been secured from frost, are an average crop; small fruits have been very abundant and good; and Walnuts, and other Nuts, are abundant. I may add that the Moor Park still excels all other Apricots in excellence for general purposes, and, as an early variety, none is better than the Early Orange. As for Apples, so many are good, it is difficult to particularise. In making new plantations of them, it will, however, be prudent to include amongst kitchen sorts a good proportion of such sturdy varieties as Lord Suffield and Wellington. The somewhat new variety of Pear, Pitmaston Duchesse d'Angoulême, is a fine variety, large in size and excellent in quality. Jefferson, Coe's Golden Drop, Kirke's, Washington, and Magnum Bonum Plums hold a foremost position amongst ordinary sorts, and Ickworth Impératrice and Coe's Late Red are desirable on account of their long keeping qualities. Most varieties of Strawberries succeed well here in the valley of the Wick, the latest and best being Souvenir de Kieffe and Filbert Pine. Among Cherries, the Black Circassian stands pre-eminent, and it is a good keeper considering its fine size and quality. Frogmore Early Black is also a useful sort. Among light-coloured varieties, Belle de Choisy ripens first, which is its chief merit. For excellence as regards quality, Bigarreau is still unrivalled; and, for appearance, Bigarreau Napoléon is the best of all. Among Peaches, I can recommend the Early Beatrice, which is early and productive, attaining perfection out-of-doors early in July, and, therefore, a valuable acquisition on walls, as well as under glass. Figs are not extensively grown out-of-doors in this district, but the Brunswick succeeds well in some seasons as a standard in elevated positions in this locality.—G. T. Miles.

—— **Latimers.**—Fruit crops here are, on the whole, very good. Apples are abundant, both in gardens and orchards; Pears are plentiful and good, both on the walls and standards, and require thinning; the crop of Apricots is a good one, Moor Park being the best; Plums are good, and all the sorts here have been thinned; the Peach and Nectarine crop is a fair one, that of Strawberries very good, but the latter did not last long, on account of so much rain. Gooseberries are plentiful; the early sorts cracked, but I have never seen the Warrington better. Raspberries and Currants are both very fine; and the crop of Cob Nuts has been a wonderful one. Damson Plums, in this neighbourhood, are abundant; also Walnuts. We are situated high here, so that the late rains have done us much good. Potatoes I find very much diseased in this neighbourhood; the English varieties quite as much so as the American.—A. Donaldson.

Northampton.—Castle Ashby.—Peaches, Nectarines, Apricots, Plums, Morello Cherries, are very good on walls; Strawberries, Raspberries, Currants (Red and Black), and Gooseberries are also good crops; on Apples and Pears, trained horizontally, there is only a moderate crop, but that on standards is plentiful. Of small fruits there have been very good crops, but large portions of them have been lost in consequence of the unusually wet season which we have had. Pyramidally-trained Pears are complete pyramids of fruit; the following succeed best under this mode of training, and all of them were root-pruned in October, 1873, viz.:—Beurré Clairgeau, Beurré Sterckman's, Beurré d'Aremberg, Albertine, Doyenné d'Eté, Bergamotte Esperen, Susette de Bavay, St. Germain, Louise Bonne of Jersey, Poire de Pêche, Marie Louise, Madame Millet, Knight's Monarch, Maréchal de Cour, Vineus, White Doyenné, Van Mons Léon le Clerc, l'Inconnue, Van Mons, Williams's Bon Chrétien, Jean de Witte, Duchesse of Orleans, Graslin, Prince of Wales, Durandeau, Duchesse d'Angoulême, Gratioli of Jersey, and Zéphirin Grégoire.—George Beech.

—— **Rockingham Castle.**—We are generally favoured with a good crop of fruit, owing, I believe, to our garden being sheltered from the east, north, and west. The bush fruit this year is a very heavy crop, but the Strawberries are not so good as usual, owing to the heavy rains and cold nights we had whilst the fruit was in bloom; our best kinds are President, Keen's Seedling, Sir Harry, Eclipse, and Wizard of the North; British Queen is a total failure. Raspberries were a good crop, and the same may be said of Apples, some trees, such as Devonshire Quarrenden and Lord Derby, requiring props, the crop being so heavy. Pears, as a rule, are not grown as standards in this locality, the soil being to heavy and retentive. Those on the walls are bearing a full crop; Cherries, Plums, Damsons, Filberts, and Walnuts are an average crop; the Apple orchards in the neighbourhood are bearing a good crop.—James Clews.

Oxfordshire.—Blenheim.—The crop of Apricots is excellent in every respect, and usually is in this district. The most suitable are Moor Park and Roman, but all kinds succeed well. The crop of

Apples is very abundant, except in low-lying and damp localities. The kinds best suited to the district are Blenheim Orange, Wellington (which does well in almost any position), Stirling Castle, all the Codlin kinds, Lord Suffield especially; Devonshire Quarrenden, Red Astrachan, Sam Young, Cox's Orange, Margil, Gravenstein, Tower of Glamis, King of Pippins, Ecklinville, Hawthornden, Yorkshire Greening. The kinds of Cherries that have answered best are Bell's Magnifique, Black Eagle, Elton, May Duke, Bigarreau, and Morello. The crops of this fruit are moderate, and inclined to crack, but the Morellos are very abundant and large. The crops of Currants—Black, Red, and White—are plentiful and large, but the flavour is somewhat acid. All kinds thrive in the district. Of Figs, the stock here has been recently planted; but, throughout the district, the crop is an abundant one—Brown Turkey, and Brunswick seem to be general favourites. Gooseberries are abundant and large, all kinds apparently doing well here. There are moderate crops of Medlars, which threaten to become small; whilst Mulberries are somewhat scarce and late. There are heavy returns of Nectarines, not many of which succeed upon open walls. The kinds most suitable are Elruge, Hunt's Tawny, Violette Hâtive, and Downton. The Peach crop is fair, not many being grown on open walls. Insects have been very severe on the foliage this year. The best varieties are Bellegarde, Crawford's Early, Royal George, and Violette Hâtive. Pears are very abundant; but, where they have not been thinned, will be small. The kinds that succeed best are Beurré d'Amanlis, Beurré d'Aremburg, Beurré Bosc, Beurré Capiaumont, Beurré Diel, Comte de Lamy, Duchesse d'Angoulême, Easter Beurré, Flemish Beauty, Glou Morçeau, Jargonelle, Louise Bonne of Jersey, Marie Louise, Ne Plus Meuris, and Zéphirin Grégoire. There are numbers of small types under local names that bear abundantly. The plums are very plentiful and fine, and all kinds seem to do well in the district. Blue-gage, Bryanston Greengage, Coe's Golden Drop, Goliath, Greengage, Jefferson, Kirke's, Victoria, and Washington are generally known. The Quinces have yielded a moderate crop. Raspberries are very abundant, but poor in flavour. Fastolf, Red Antwerp, and Yellow Antwerp are well known here. Strawberries are plentiful and large; the varieties most generally seen here are Keen's Seedling, Sir Charles Napier, President, Sir Joseph Paxton, Elton Pine, and Dr. Hogg. Grapes on open walls are abundant.—M. TEMPLE.

Northampton.—Burghley, Stamford.—Of Apples and Pears there is a good half-crop of very excellent fruit, which is much better than a heavy crop. We have 700 feet of south wall engaged with Apricots, of which there is an excellent crop of good-sized fruit just colouring. As regards the crop of Plums, that of Greengages is thin; Rivers's Prolific is large in size, good, and nearly ripe. Of Strawberries there is an excellent crop of large-sized fruit, but they lack flavour. Strawberries like moisture, but the wet this season has been too much for them. The crop of Cherries on all the early varieties has been good, and the Morellos, now just ripening, are enormous. Peaches and Nectarines have a good half-crop, those on south walls being the best, and the same may be said of Figs. Of small fruits the crop is heavy, but of medium quality in consequence of the wet. The crop of Nuts is enormous.—R. GILBERT.

WEST MIDLAND DIVISION.

Worcestershire.—Madresfield Court.—The fine genial weather, which we are now having after a long period of continuous rains, will prove most beneficial to fruit of all kinds, which are unusually abundant this season. Apricots, Peaches, and Nectarines are heavy crops, fine and clean, but rather later than usual; Plums, generally, are a heavy crop, the large plantations of them throughout the Vale of Evesham are loaded with fruit, which is, and will be, very cheap; Apples and Pears, in most places, are heavy crops, both in gardens and orchards. The amount of Cider and Perry that will be made this season will be large, and probably better in quality than usual. Cherries have been, and late kinds still are, abundant; bush fruits, such as Currants and Gooseberries, are plentiful; Strawberries have been a fair crop, but they were much injured by constant wet weather; Figs are a very heavy crop here. The most remarkable crop of the season is, however, probably, Nuts, Filberts, and Walnuts—Nuts, both in coppices and hedge-rows, being at present quite a sight. Taken as a whole, fruit crops this year are excellent —W. COX.

—— **Worcester.**—In this district there is abundance of all kinds of fruit, except, perhaps, Apples, which are not quite so plentiful as Pears, Plums, and other kinds of fruits; still, the crops generally are good; there is not a failure of any kind; but, owing to so much rain, hitherto it has lacked flavour.—RICHARD SMITH.

—— **Witley Court, Stourport.**—Upon the whole, the fruit crops in this district, although somewhat partial, are satisfactory. The excessive rainfall and absence of sunshine throughout July has, however, materially damaged tender fruit; nevertheless, trees of all kinds are making vigorous growth, which is free from blight. Apples, although somewhat partial, are an average crop. Since the rains, I observe that some sorts have dropped in unusual quantities. Cider varieties are very partial; in some orchards they are abundant, whilst in others they are scarce. Pears are under the average and very partial. Plums generally are most abundant, many of the trees being loaded to the ground with the weight of fruit, Damsons forming no exception. Strawberries of all kinds have borne abundant crops; late sorts have, however, been much damaged by the wet weather. Cherries are also abundant, but the early varieties were got in fine condition, whilst later sorts have burst in quantities, being continually wet. Peaches and Nectarines on open walls are excellent, and the trees are perfectly healthy. Figs upon walls are swelling fine crops; Currants, Red and White, are abundant; as are also Black Currants and Raspberries; of Walnuts, Cobs, and Filberts, we have heavy crops. I may remark that the disease in the Potato crop is spreading seriously, even amongst the early sorts, which are not yet sufficiently matured to harvest, and I fear much for the result, even although we have at last the prospect of fine weather, seeing that the soil is so thoroughly charged with moisture.—GEORGE WESTLAND.

Cheshire.—Crewe Hall.—Fruit crops in this place, and in the surrounding district, are more abundant than they have been for years. Peaches, Nectarines, and Apricots, on walls, set so plentifully that I was obliged to thin off quite two-thirds of the fruit, to reduce the quantity to what the trees would be able to bear without injury. Pears, Cherries, and Plums, both on walls and as pyramids and standards, with few exceptions, are bearing heavy crops; and Damsons, which are grown largely in this county, are bearing heavier crops than they have done for years. Apples, also, are abundant. All the small fruits were very plentiful, with the exception of Strawberries, which were injured by the wet weather which we have had. The kinds of fruits which succeed best with me are the following:—Apricots—The Moorpark and Alsace. Peaches—Early Albert, Dymond, Princess of Wales, Grosse Mignonne, Violette Hâtive, Barrington, Stirling Castle, and Walburton Admirable. Nectarines—Elruge, Impératrice, Violette Hâtive, and Victoria. Pears on walls—Maria Louise, Knight's Monarch, Beurré Diel, Napoléon, Jean de Witte, Josephine de Malines, Winter Nélis, Glou Morçeau, and Easter Beurré; as pyramids and standards—Aston Town, Citron des Carmes, Jargonelle, Doyenné d'Eté, Williams's Bon Chrétien, Duchessé d'Angoulême, Louise Bonne, Zéphirin Grégoire, and others. Plums—Coe's Golden Drop, Jefferson, Kirke's, Denyer's Victoria, Washington, and white Magnum Bonum. Damsons, Orleans, and Mitchelson's, for cooking and preserving. Apples, Dessert—Court Pendu Plat, Irish Peach, Cox's Orange Pippin, Old Nonpareil, Ribston Pippin, and Scarlet Nonpareil; Kitchen—Blenheim Pippin, Cellini, Cox's Pomona, Dumelow's Seedling, Hawthornden, Keswick Codlin, Lord Suffield, Mère de Menage, Minchal Crab, Norfolk Beefing, Northern Greening, and Yorkshire Greening. Trained as single cordons in an orchard-house here are the following comparatively new Peaches and Nectarines, raised, I believe, by Mr. Rivers; they have grown vigorously, are bearing abundantly, and are a great acquisition, ripening as they do with me from the first week in July to the end of September. I have given them in the order of their ripening:—Peaches—Early Beatrice, Early Louise, Early Rivers, Dr. Hogg, Early Alfred, Rivers's Early York, Dagmar, Alexandra Noblesse, Crimson Galande, and Lord Palmerston. Nectarines—Stanwick, Elruge, Pine-apple, and Victoria.—WM. WHITAKER.

—— **Abney Hall, Cheadle.**—Strawberries would have been a full and good crop had they not been so much injured by the continued heavy rains when they should have been at their best. Lucas has been our best sort for general purposes, and for preserving we grow Black Prince. Cherries have been a good crop. Raspberries were injured by the wet weather; still the supply has been sufficient. Gooseberries have been very heavily loaded, and no sort seems to be more useful than the Warrington. Red and Black Currants have been good crops, especially the former. Crops of Apples and Pears are not so heavy as they were last year, especially Apples, and the Pears are not so good in quality. The best last season were Williams's Bon Chrétien, Louise Bonne of Jersey, Marie Louise, Red Doyenné, and a few of Beurré Diel were good. Gansel's Bergamot, Seckle, Beurré d'Amanlis, and some others were not satisfactory. Apricots are not much grown here, and the fruit this season are not regular on the trees; they may therefore be set down as a partial crop. Of Peaches and Nectarines there are full crops, though, on account of spring frosts, they cannot generally be depended upon. Of most kinds of Plums, both on walls and on standards, the crop has seldom or never been more abundant.—R. MACKELLAR.

Herefordshire.—Downton Castle, Ludlow.—Fruits of all kinds here are good this season. Raspberries, Gooseberries, and Strawberries are fine crops; Red and Black Currants are also good, and we have excellent crops of Pears, Peaches, Nectarines, Apricots, Morello Cherries, Mulberries, Walnuts, and Filberts; Plums are not so good this season as usual; but Apples are a splendid crop in most parts of this county.—Wm. Lundon.

—— **Ledbury.**—Peaches are plentiful, even on trees that had no protection from spring frosts; Apricots, abundant; of these we have had no such crops for years, and the trees of both these and Peaches are healthy. Figs, also plentiful; during the two last years the wood got well ripened; no difference is found in trees that had their shoots pinched in and those that were allowed to ramble. All are bearing equally good crops. On walls, Pears are plentiful; but some sorts vary greatly in size and quality, according to the aspect. Take that best-of-all-known Pear for flavour—Marie Louise; of this, there are fine fruits on south and west aspects, but the finest fruit of all is that from a north aspect, and it keeps longer than that even from standards. Glou Morçeau is best from a west aspect; on a south aspect it is liable to crack. Williams's Bon Chrétien, on a south wall on a Pear stock, is excellent. Beurré d'Amanlis is good on south and west aspects. Plums on walls are fair crops; on standards, heavy crops. Mirabelle, a small culinary Plum, grown as a standard in this neighbourhood, always bears a crop, whatever the season may be; it comes in just when other small fruits are over. Cherries are plentiful, both on walls and standards. Cherry orchards abound in this neighbourhood, and in well sheltered situations the crops in these are abundant, affording employment for women from the surrounding villages and hamlets for weeks gathering the fruit. Tons of Cherries have been sent to the mining districts of Staffordshire and Wales during this season. Of Apples, we have good crops, which have been washed clean by the heavy rains. Currants, Black, White, and Red, are good crops, as are also Raspberries and Gooseberries; Walnuts and Filberts are also good.—R.

Gloucester.—Tortworth Court.—The fruit season of 1875 is the most productive we have had for many years past. It is, however, to be regretted that there has been an unusual deficiency of sunshine, accompanied by an excessive rainfall, which has kept the atmospheric and ground temperature very much below the average of years. As a consequence, growth has been checked materially; and, however favourable the weather may be during the remaining part of the year, there is not, I fear, sufficient power left to remedy the defect, and hence there is a failure in flavour, particularly in fruit grown in exposed situations. The Pear crop with us is heavy; but the Apple crop is moderate, and confined to some particular kinds, particularly the autumn and early winter varieties. The only remedy in a backward season, such as the present, is to allow the fruit to remain on the trees as long as they are safe from frost to prevent shrivelling in the fruit-room. Peaches, as a whole, are a good crop; the greatest bearers are Stirling Castle, Royal George, and Grosse Mignonne. As an instance of the uncertainty of seasons, in 1874 I gathered ripe fruit from these varieties on the 20th of August, while I shall be unable to do so this year till the first week in September. Nectarines may be classed with Peaches, and are equally late. The Plum crop is heavy, both on the standards and wall trees. The same may be said of Cherries, and more particularly the Morello. Apricots are a failure, indeed they rarely succeed here. Small fruits have cropped heavily, but are deficient in flavour. With us the Fig is always a precarious crop, and never well flavoured. Nuts are abundant everywhere, and show the heaviest crop I have seen for many years past. The Potato disease is running its usual course, and, unless it moderates, there will not be a third part of a crop left. —Alexander Cramb.

NORTH MIDLAND DIVISION.

Nottinghamshire. —Radcliffe-on-Trent.—Apples, a very partial crop, in the best situations, and very thin in others. Lord Suffield, Spencer's Favourite, Kingston Pippin, Bess Pool, Bess Pool Improved, Normanton Wonder, and Caldwell are the most notable Apples in this place. Pears are a very fair crop, though not so large as their blooming gave promise of, but still good. Dearborn's Seedling, Doyenné d'Eté, Beurré Giffard, Beurré d'Amanlis, Williams's Bon Chrétien, Beurré Superfin, Marie Louise, Welbeck Bergamot, Winter Nélis, Beurré Rance, and Easter Beurré are sorts much grown here, and they are sure croppers. Plums have yielded a heavy crop throughout, except Damsons, which are only a partial one. Victoria is one of the most prolific, and of all the Plums it is the most extensively grown. The Gisborne, Kirke's, Early Prolific (River's), Jefferson and Washington, Magnum Bonum, Coe's Golden Drop, Dove Bank, and Orleans are much grown. The crop of Apricots is a heavy one. Moor Park is almost the only variety grown here. Apricots are much grown in this village; almost every cottage has its tree trained against it, and, in good seasons, its produce goes a long way, in many cases, towards paying the rent. Of Peaches and Nectarines there are not many grown here, except under glass. Royal George and Noblesse are generally used in those cases. Raspberries show a full crop; Fastolf and Fillbasket being the kinds most grown. Strawberries yield a heavy crop, but a great deal of fruit has been spoilt by the long rainy season. Black Prince, Keen's Seedling, President, Sir Joseph Paxton, British Queen, Sir Charles Napier, and Frogmore Late Pine succeed best hereabouts. Bush fruits, as Black and Red Currants and Gooseberries, are a full crop, except where birds had taken the buds. Of Black Currants, Black Naples and Ogden's Black are the two best; of Red, Houghton Castle, Red Grape, and La Marseillaise are superior to all others. The most useful sorts of Gooseberries are Crown Bob, Warrington, and Lancashire Lad. The show sorts, as Antagonist, London, and Companion, are much grown amongst amateurs, who grow them for show purposes. The crops of Cobs and Walnuts are heavy, the latter especially so. Our river Trent, during the past week, has overflowed its banks, and risen to a height previously unknown in the month of July; garden produce in the lowlands has therefore suffered to some extent. The river is now full for summer time, but is within reasonable bounds.—N. H. Pownall.

—— **Nottingham.—Chilwell.**—There is here but a very partial crop; of Apples and Pears some trees are very full, and others quite destitute of fruit; I have more than 80 acres of orchards, most of them on hill sides, and, contrary to the general rule, the trees are full in the valleys and carry a very light crop on the hills. I do not think we have more than a third of a crop of Apples and Pears; Damsons or Prune Damsons show a very good crop, and Victorias are also bearing well.—J. W. Pearson.

North Nottinghamshire. — Welbeck. — Of Apples and Pears there is an average crop; of the early kinds of kitchen Apples in this district, Lord Suffield, Keswick Codlin, Old Hawthornden, and Duchess of Oldenburg have cropped the best, and of the later kitchen and dessert kinds, Cox's Pomona, Irish Peach, Blenheim Orange, King of the Pippins, Small's Admirable, and Sturmer Pippin; of the early Pears, Doyenné d'Eté, Beurré Giffard, Beurré d'Amanlis, Williams's Bon Chrétien, and Citron des Carmes, are abundant; and, of the later varieties, Louise Bonne, Fondante d'Automne, Thompson's, Maria Louise, Josephine de Malines, and Easter Beurré, are likewise bearing well this year; Plums, in general, are above an average crop, that old favourite, the Victoria, being everywhere heavily laden; Damsons also show very heavy crops in favourable soils and situations; Cherries of the May Duke and other early ripening sections, were abundantly supplied in the markets, but after the heavy daily rains set in in July, all that were ungathered split, and were rendered useless. The Morellos and late Dukes being yet unripe, may escape if August is dry and fine. Gooseberries of the thin-skinned sorts are all much damaged by the wet weather, having split their skins and dropped off the bushes; the Warrington, however, being thick-skinned, is, as yet, uninjured, and this variety, being the latest keeper, is by far the best Gooseberry to be grown in quantities, either for dessert or market purposes. Raspberries are much damaged, being rendered soft and flavourless by the rains; some of the earliest varieties of Strawberries, such as the Old Scarlet, Black Prince, and Hericart de Thury, ripened good crops for preserving, but all the later kinds were injured and lost flavour, Dr. Radclyffe, the Elton, and Frogmore Late Pine, being the only sorts that were not affected in this respect; small bush fruits, such as Currants, Red and Black, are cropped heavily, and have withstood the wet weather without much injury. I grow the Parsley-leaved Blackberry, as well as some of the American sorts, and they are loaded with blossoms. I see that the wild Blackberries in the hedges are likewise in a wonderful sheet of bloom, so that if the autumn is fine there will be plenty of these fruit for preserving. In my opinion, the finest of all preserves is a jam made of the fruit of the Parsley-leaved or Lawton Blackberries, mixed with a few good sauce Apples.—William Tillery.

—— **Eastwood Hall.**—Apricots are scarce, the trees being in bad condition; of Apples there is an abundant crop of fine fruit; the returns of Plums and Damsons are very large, the trees being ready to break down with fruit; Strawberries are abundant, but they are damaged by the rains; Cherries show a good crop of all kinds; of Peaches and Nectarines the crop is large, the trees are very free from red spider and are healthy; Figs show a large crop of fine fruit, and the same may be said both of Gooseberries and Currants; Raspberries are most abundant and fine.—Chas. Turner.

Leicestershire.—Coleorton Hall, Ashby-de-la-Zouch.—The crop of Apricots where the trees were protected when in bloom is heavy, in other cases it is only a partial one; Peaches and Nectarines are both abundant and required much thinning; the Apple crop in this neighbourhood has been very heavy, and of Pears on standards this may also be said; on walls the crop has been good. Plums are not so plentiful as last year; whilst of Strawberries there is a heavy crop which, however, is much damaged by the long continued wet; of Cherries, and particularly of Morellos, there is a good crop, and Figs I never saw more abundant; Currants, Gooseberries, and Raspberries are each and all plentiful but are injured by the rains; both Walnuts and Filberts are abundant.—M. Henderson.

Derbyshire.—Chatsworth.—Our fruit prospects were all that could be desired up to the 30th of May, when we registered 9° of frost, which killed nearly all the Apple and Pear bloom, as well as that of the earliest Strawberries. We have no Peaches, Nectarines, or Apricots out of doors, our summer being too short to enable such trees to ripen their wood. We have a fair crop of Gooseberries, a good crop of Currants (black, red, and white), a fair crop of Raspberries, and good crops of Cherries; of Apples we have none, and Pears are only one-tenth of a crop; of Filberts we have none. Strawberries have been good, especially Vicomtesse Hericart de Thury and Underhill's Sir Harry, which suits our cold district best. We have had 5½ inches of rain during the month of July.—T. Speed.

—— **Osmaston Manor.**—Apples here are a heavy crop, some trees being loaded down with them. Pears are also a great crop; and Apricots are plentiful. Damsons and Medlars are about half a crop. Of Cherries there is a large crop; Strawberries have been plentiful, and the same may be said of Raspberries, Currants, and Gooseberries. Nuts hereabouts are a great crop; Filberts, half a crop; Walnuts, plentiful; Peaches, Nectarines, and Figs, grown indoors only, and are always good crops.—J. Booth.

Lincolnshire.—Aswarby Park.—I never had such fine prospects for a heavy crop of Apples and Pears as during the past spring; but I am prohibited from shooting bullfinches, and they have got so numerous that the Apple and Pear tree buds suffered enormously, and consequently our Apple and Pear crops are very light ones indeed; of both fruits there is but a quarter crop. Varieties that do well here—Williams's Bon Chrétien, Louise Bonne of Jersey, Van Mons, Léon Leclerc, Marie Louise, Monarch, Doyenné du Comice, Ne Plus Meuris, Glou Morçeau, Beurré de Rance, Winter Nélis, Josephine de Malines, Forelle, Jean de Witte, Beurré Bosc, Brown Beurré, Crassane, Duchesse d'Angoulême, Gansel's Bergamot, Althorp's Crassane, and Napoleon. Of Apricots there is a full crop. The best varieties are Hemskirk, Kaisha, and Moorpark. Figs are plentiful and the fruit very fine. I gathered the first ripe fruit on the 29th July. I grow two varieties; one is Castle Kennedy, the other I do not know. I can trace its introduction to Scotland from France about sixty years ago. The tree is still growing in the same place. It is the hardiest and earliest Fig I know. The original tree has had no protection in Scotland for the last thirty-six years. This Fig is also good for potting. In two days' time I shall gather ripe fruit from Castle Kennedy—some I have on the tree measuring 10½ inches in circumference. Of Gooseberries there is a full crop. The heavy rains caused a great destruction to the crop. Warringtons are the only ones that have escaped; they are growing on a north border, and are now in good condition. Black and Red Currants are plentiful, and the fruit fine. Both Nectarines and Peaches are plentiful, but the trees are not doing well. Of Plums there are thirty-six varieties, one and two years planted, all being trained to the single cordon. With the exception of six trees, all are bearing full crops. We are gathering Rivers's Early Prolific in fine quality; this is an early Plum. Every person ought to cultivate Mamelonnée; this is also ripe, and makes a fine variety. Besides the Early Prolific Plums, old trees are all bearing heavy crops. Of Strawberries there is a full crop—fruit large and fine. Varieties—Keen's Seedling, British Queen, President, Dr. Hogg, and Sir J. Paxton. Walnuts, full crop. In this neighbourhood the Apple crop is very good. Pears, full crop. Plums, over the average. Red and White Currants, above the average. Vines outside bearing heavy crops, but very late.—Richard Nisbet.

—— **Bloxholm Hall.**—The fruit crops in this locality are, on the whole, good. Apricots are an abundant crop, the fruit being fine and just ripening. Apples and Pears are not quite what we expected of them from the very abundant show of blossom in spring, but still we have good crops of all the hardy varieties. Plums, in most cases, are abundant, and, on walls, very fine. Strawberries, in most cases, were very abundant, but were of short duration, as the heavy and continuous rain in July injuried the ripe fruit; Cherries are a moderate crop. Peaches and Nectarines are abundant and clean, whilst the trees out of doors have yielded moderately, but abundantly under glass. The crop of Gooseberries is a very large and very fine one. Red and White Currants are plentiful, but black varieties are somewhat scarce, having been injured by spring frosts. The Raspberry crop is a very good one, and the fruit fine. Walnuts are abundant, and Filberts fairly so. Of Potatoes there is an abundant crop of both early and late kinds, but disease has made its appearance amongst all varieties, both English and American, within the last week, after three weeks heavy and nearly continuous rain. Very few tubers are, as yet, diseased, but the haulm shows it in many parts, more particularly on heavy soils and strong-growing varieties. The month of July has been remarkable for heavy rains in this neighbourhood, the fall having been over 4½ inches; rain fell on eighteen days, and thunder was heard nine days in succession, on the 17th to the 25th; since then we have had beautiful weather.—D. Lumsden.

Rutland.—Belvoir Castle.—Apples here are a satisfactory crop, and the fruit is large and free from maggot. Apricots are abundant on all aspects, and the fruit is large and clear. Early Pears suffered from ungenial weather and insects; but late sorts are bearing well; on Bergamotte Esperen, Beurré Rance, and Josephine de Malines, the fruit is abundant. Cherry trees on walls are bearing well, but standards are not well cropped. Of Plums we have excellent crops, both on walls and standards. Peaches are healthy, and are bearing a good crop. The drought of the preceding and present year affected early Strawberries; but rain came in time to save the late sorts; Frogmore late Pine and Duke have been good. Figs on walls are a fair crop; Gooseberries are abundant, a remark which also applies to Currants and Raspberries.—Wm. Ingram.

SOUTH-WESTERN DISTRICT.

Dorsetshire—Morton, Dorchester.—Of Apricots very few are grown. Peaches and Nectarines in orchard-houses, &c., are very plentiful indeed, on open walls thin, but there are not many grown without protection. Plums in high and dry situations yield good crops, but where the situation is low and damp are very thin. Pears have tolerably good crops on walls, but are scanty in open quarters. Apples are very good indeed under all systems of pruning and training. Of Cherries, the Morellos good. The crop of Figs is thin. Strawberries are abundant, but damaged by rain, whilst Gooseberries and Currants are plentiful.

—— **Sherborne.**—The Apple crop, both in gardens and orchards, appears in this district to be plentiful, but it is much blighted. Apricot trees have produced a very fine crop, and Barberries are abundant. As regards Cherries, little can be said of a satisfactory character, except of Morellos, of which there is a good crop. The other varieties are scarce. Currants have been ripened in abundance; whilst of Figs there is but a moderate crop. Gooseberries, Raspberries, and Strawberries are plentiful, but the heavy continuous rains have spoiled large numbers. Of Medlars, there is a moderate crop, and of Mulberries a very fair one. The supply of Nectarines and Peaches is very good, but Pears are small, and the crop of moderate extent. Of Plums, the crop is a meagre one here, but they are plentiful in some parts of the neighbourhood. Nuts of the common kind are abundant, but Filberts are scarce. The Quince trees have been fairly prolific, and Walnuts are good, both as regards quantity and quality. I am afraid the Potato crop will be a complete failure here. Many kinds will not be worth taking up.—W. G. Peagnell.

—— **Clevelands, Lyme Regis.**—The fruit crop in this neighbourhood has been generally very good; but the amount of rain which fell during the ripening period affected the flavour, especially that of Strawberries, of which we had an abundant crop. Apples are again plentiful, and are influencing the price of Cider, which can now be had at low prices. Pears are a partial crop this year—in some places there are plenty, in others none. Bush fruits are abundant and good. Of wall fruit there is a fair crop. Plums are plentiful. Peaches and Nectarines are scarce, except in orchard houses, where they are plentiful. Hedge Nuts and Walnuts are plentiful, and promise to be good. The Potato crop is sadly diseased—both leaves and haulms, and there is every probability that the crop will be deficient.—Henry Munro.

—— **Canford.**—Small fruits have been very abundant here this season. Of Strawberries, Marguerite, Dr. Hogg, Sir Joseph Paxton, and President, are standard varieties; the first mentioned, of French origin, seems to suit a southern climate. Currants have been a heavy crop, and, among cottagers, one often sees immense-sized fruits of all the varieties. Gooseberries have also been plentiful and large, no varieties being more useful than Whitesmith, Yellow Sulphur, Warrington, Greengage, and Glenton Green. Plums, consisting of Greengage, Reine Claude de Bavay, Kirke's, and Golden Drop, on walls, are plentiful; Victoria is abundant on standards, and various Plums, with local names, are very heavy crops. Apricots are very light crops, except on elevated localities. Pears and Apples are heavy crops. Dumelow's Seedling, Cellini, Mère de Menâge, Nelson, Dutch Mignonne—in short, all Apples do well here. The large cooking Pears, Verulam, Vicar of Winkfield, Uvedale's St. Germain, do well as dwarfs; Marie Louise succeeds as a large standard tree, and Beurré Bosc, Glou Morçeau, Ne Plus Meuris, Williams's Bon Chrétien, and many others, as standards in the orchard. On espaliers, Comte de Flandres, Duchesse d'Orleans, Beurré Capiaumont, Josephine de Malines, Beurré Sterckmans, and many others do well. Figs, such as Brown Turkey and Brunswick, are a heavy crop. Peaches out of doors, poor.—W. Dick.

Cornwall.—Enys, Penryn.—Of Apples, there are plenty of kitchen sorts, but the dessert kinds are under the average, especially the later varieties. Pears are scarcely up to the average; the kinds which do best are Jargonelle, Louise Bonne of Jersey, Swan's Egg, Brown Beurré, and Beurré Capiaumont; Winter Nélis and Glou Morceau do well in some places, and Chaumontel and Williams's Bon Chrétien in others. Peaches and Nectarines yield good crops; Plums are plentiful where the bullfinches did not carry off the buds; here they made havoc with them. The supply of Cherries is also meagre from the same cause; Strawberries are abundant; bush fruits are variable, but generally good; Raspberries, very good, and Figs abundant.—Henry Mills.

Devonshire.—Killerton, Exeter.—Apricots are very scarce. Of Apples there is a very good crop, but not so heavy as in 1873 and 1874. The crops of Pears is below the average, with the exception of Winter Nélis and Glou Morçeau. There is a moderate crop of Plums and a good one of Strawberries, but the latter are much injured by the heavy rains. Cherries are plentiful, but Peaches and Nectarines are below the average; the trees, however, are very healthy. The Fig crop is a fair one. Black Currants are abundant, and Red and White fairly so. Gooseberries are below the average, the bushes having been much disbudded by bullfinches in winter. We have heavy crops of Nuts, but they are not much grown in the district.—J. Garland.

Wiltshire.—Wilton House, Salisbury.—The Apple crop is very large, but is much injured by the low temperature and excessive wet; Apricots are scarce. The trees are more subject to canker than I have observed for years, owing, in a great measure (I believe) to the excessive rainfall last October. Of Cherries there is a fair crop, and Currants are abundant and good in quality; the Fig crop is good, and Gooseberries abundant; Nectarines and Peaches have set an excellent crop, and Pears are good; Plums are good on walls, but not on standards; of Medlars and Mulberries there is a fair crop; Nuts and Filberts are plentiful, and both Raspberries and Strawberries are abundant; the Walnut crop is heavy. Previous to the commencement of the late heavy rainfall the fruit crops generally, in this neighbourhood, looked most flourishing, and there was every prospect of the greatest and best fruit harvest we have had for years past, but the excessive wet, accompanied by the sudden fluctuations of, and, at times, exceedingly low temperature, has engendered so many evils, that, although the quantity is great the quality is poor, and will, I fear, continue to be so, unless we shortly get bright sunny weather.—Thomas Challis.

Somerset.—Ashton Court, Bristol.—The crop of Apricots here has been but a partial one, Moor Park and Breda yielding the best, but in higher and better drained localities the crop is larger and the fruit finer; the trees are clean and vigorous. Apples are abundant in gardens and orchards alike, and of Pears there are good crops of fine clean fruit. There is an average crop of dessert kinds; preserving and common varieties are thin in exposed and open situations. Strawberries have been abundant and fine. The early varieties were good in every respect, but the late kinds have been rendered almost worthless by the unusually heavy rainfall. All kinds of Cherries are abundant, of Peaches and Nectarines the crops are good generally, and the trees are clean and healthy. The crop of Figs is thin here but good on dry and warm sites. All kinds of bush fruits are abundant and remarkably free from blight, whilst Nuts, especially Walnuts, show heavy crops, and this refers to all kinds.—Jno. Austen.

—— **Merriott, Crewkerne.**—The warm weather of 1874 so matured the wood of all out-of-door trees that we anticipated a fine blooming season, and our expectations were fully realised, for the sight presented by gardens and orchards during the past spring was very beautiful. Our hopes of having a plentiful crop were high, more especially as the weather continued cold and nearly without frost up to a late period. These hopes nevertheless have been only partially realised. The nights of the month of May, as usual, proved cold and frosty, so that great numbers of the young fruits perished; notwithstanding this, we had an abundance of most kinds left, but were visited by a heavy hailstorm, which sadly injured the young succulent fruits, specking them all over, and cutting the leaves into hundreds of holes. Apples are over an average crop in nearly all localities in this neighbourhood, and it would have been well if three-fourths had been cut off. On most of the trees, as it is, the fruit will be small and husky, and a number of small Apples will not make up for a few large juicy ones; hence the importance of judicious thinning. Cherries, where any are grown, have been a good crop; but we are not large Cherry growers in the west. My own trees in large numbers were loaded; but the blackbirds claimed nine-tenths of them, and I may truly say that they take considerably more than half of all my fruits as their share. Pears are a good crop, but many are much specked. It is worth noting that sorts worked upon the Quince have this year borne much more generally than those worked upon the Pear stock. On this last I have an avenue row of 1,000 sorts, and one-third of these have failed; whilst a similar row of 250 sorts upon the Quince has only ten trees in it fruitless; besides all the sorts upon the Quince have full crops, but not half of those on the Pear stock show a fair crop. The more I see of Pear culture, the more I am convinced of the utility of growing them upon the Quince; of course, I mean such sorts as grow freely upon it, and the more I cultivate such trees the more I see the wisdom of planting the stock 2 inches under ground, *i.e.*, 2 inches below the junction of the stock and graft. It has been said, "Oh, the graft will root, and then the stocks will be of no avail." I know the graft will occasionally do so, but the instances in which such rooting takes place are few. I had to transplant 3,000 trees grafted on the Quince this season. They had been nearly all planted below the junction three years ago, and my men found only about six that had rooted from the graft. I have a Beurré Diel Pear "worked" upon the Quince that I planted twenty-two years ago. It has rooted from the graft, but I perceive no difference in its bearing. It has not, however, grown so large as others, of the same age, not worked upon the Quince; hence no one need be afraid that Pear trees on the Quince are going to overgrow, or give up bearing, because sometimes they may happen to root from the graft.—J. Scott.

EASTERN DIVISION.

Suffolk.—Henham Hall.—The Apricot crop is abundant, and the fruit very fine. Peaches and Nectarines are plentiful and good as also are Cherries, especially Morellos. The Apple crop is partial, but is good on espaliers and dwarfs; on standards they are much blighted. The crop of Pears is an average one; this may also be said of Plums, of which the fruit is fine. Walnuts and Filberts are very plentiful, and Strawberries have yielded a heavy crop. Gooseberries, Currants, and Raspberries are abundant.

—— **Culford, Bury St. Edmunds.**—Apples are exceedingly abundant, with every appearance of being remarkably fine. The same may be said of Pears on standard trees, as well as on those trained to walls. Apricot trees are healthy, and the fruit plentiful, as well as very large and fine. Peach and Nectarine trees are tolerably free from insects, and bear an abundance of fruit. Plums of all sorts are plentiful. Of Cherries, only the Morello variety is grown out of doors here, and the trees are all bearing a heavy crop of fine fruit. Figs on the open walls, as well as under glass, are bearing an abundance of fruit, which a week or two of fine weather will begin to ripen. Gooseberries are in very great abundance, and very fine, although the continuous wet weather is causing some of the fruit to burst or crack. Currants of all kinds are plentiful, as are also Raspberries, which are very fine. The kinds which this season have proved the most abundant croppers were Prince of Wales, Carter's Prolific, and Fillbasket. Strawberries of all kinds have been most abundant, and of the finest quality—the showery weather having been particularly favourable to this fruit, on the light soils of the district, and the supply has been of much longer continuance than is usually the case. The finest varieties have been Sir Joseph Paxton, Sir Charles Napier, Dr. Hogg, and British Queen. Walnuts will be a rather light crop. Filberts of all sorts are plentiful.—P. Grieve.

—— **Wolverstone Park, Ipswich.**—The heavy hailstorm that passed over some parts of this district on the 18th of June did a good deal of damage to the Apple and Pear crops in these gardens; but, on making enquiries, I do not hear of others having suffered to the same extent. Here all large-leaved plants were cut through, and the tender fruit of Apples and Pears bruised and pitted by the pelting hail, the effects of which are now showing itself in warty excrescences on the rind of the fruit that checks their swelling and causes deformity. Some kinds of Pears on walls having a west aspect have set immense crops, and have had to be thinned by removing at least two-thirds. The soil here is not over favourable to Pears on the Quince, and the pyramids on this stock have not set a very abundant crop, probably owing to the weakness of the bloom resulting from the excessively dry summer and autumn of last year. Of Apples we have not had such crops for many years past, and, where they are not affected by the storm above mentioned, promise to be unusually fine, owing to the soaking rains we have had. Apricots have set immense crops, and it has been necessary to thin them freely. Both these and Peaches have been kept back by the cold and wet, but are now swelling rapidly, and, with warm weather, promise to be large and fine; in fact Peaches and Nectarines have not been in such a satisfactory state for years past, the crops being abundant and the wood clean and healthy. Plums have set well, but many have since fallen, and others are deformed and exude a great deal of gum, probably the result of frost bite or the effects of the hail. Jefferson and Greengage have stood best, and the crops on these are in a more satisfactory condition than any other varieties. Cherries have had splendid crops, but, owing to the excessive wet, the fruit has not been so good in flavour as usual, and quantities have split open and rotted. The late sorts, such as the Duke or Elton, will be in better condition now that the weather has become more settled; and the varieties mentioned will be unusually large and fine. Raspberries, and all kinds of bush fruit have been heavily cropped; but the early sorts of Gooseberries, such as Golden Drop and Whitesmith, have been comparatively worthless as most of the crop split open and fell from the trees. The late sorts have not as yet suffered in that way, and that esteemed old favourite, the Warrington, appears all the finer for the soaking they have had. Strawberries on light land have not been very abundant, owing to the extreme dryness of the summer and autumn preventing the proper formation of flowers; but, on stiff soils, the crop has been very heavy and the fruit large. The late sorts have suffered a good deal from the wet, and quantities have rotted on the plants. Nuts of all kinds are unusually abundant, and every berry or seed-bearing plant or tree is this year laden with the one or the other. Beeches are so weighed down by the load of nuts they are bearing, as to have quite lost their distinctive character, and look even more pendulous than the Birches; while the trees present quite an autumnal appearance on account of the rusty brown colour of the mast. Hollies, too, are crowded with berries, and, when coloured, will be exceedingly beautiful.—J. Sheppard.

Suffolk.—Bury St. Edmunds.—Hardwicke.—Upon the whole the crop of fruits is unusually large and fine hereabouts this season. It is emphatically a Plum year. Pears were a marvellous sight—the trees literally whitened over with bloom. The fruit also seemed to set well. Then came the ravages of the maggot, which bored thousands to destruction, the Pearlets falling in showers, until, in every case, few or none were left. We have, however, a fair crop. Apples are abundant, though a good many of them have also fallen off lately, still there will be an average good crop left. Peaches are plentiful, and the same may be said of Nectarines. Apricots are a very full crop; they are swelling well and ripening somewhat slowly. Cherries are a very fair crop, though they suffered much from the heavy rains. Of bush fruits, there are extraordinarily fine crops. Currants of all sorts heavily laden, and Gooseberries breaking under their enormous burdens. Raspberries are also plentiful, but much injured by the rain. Strawberries have been, on light lands, an extraordinary crop, but full half of the late kinds rotted on the plants. Walnuts, Filberts, and other Nuts are plentiful. Figs in the open air are abundant. Citron des Carmes Pears totally rotted on the tree before they were ripe; Apricots did the same. Morello Cherries are of unusual size, and so watery as to threaten decomposition. George the Fourth Peach proves one of the hardiest and the best, being less injured by spring frosts than any other variety.—D. T. Fish.

Norfolk.—Cossey Park, Norwich.—Peaches and Nectarines on walls have yielded good crops; Apricots are, as a rule, abundant, but, in some instances, thin from the fruit dropping off before it is ripe; Plums on walls are somewhat scarce, but most abundant on standards, while other trees of the same kinds are, in a few cases, fruitless, especially in exposed situations; Cherries are a failure, except Morellos, which are plentiful; Apples are thin, and much below the crop of last season; the Pear crop is a moderate one, both on walls and on standards; Medlars, abundant; Figs are an average crop; Strawberries have been good, but all the late kinds have been spoiled by the cold wet weather which we have had, a remark which also applies to Raspberries, Currants, and Gooseberries, especially the last; Filberts and Walnuts are under an average crop. I may add, that the Potato blight is spreading fast. For curl, which appeared in the fore-part of the season, the best remedy is change of seed for moor-land districts.—J. Wighton.

—— **Sandringham.**—Apricots here are not so plentiful as they were last season. Apples are a great crop, and, since the late rains, are swelling fast. Plums had to be thinned very freely, an operation which we did early, and they are becoming very fine in consequence. Pears, under all forms of training, are good crops, as are also Peaches and Nectarines. Bush fruits, of all kinds, are plentiful. Potatoes began to show disease about the 20th of last month, more particularly the following varieties, viz.:—Robson's Challenge, Snowflake, and Extra Early Vermont; but the fine weather, which we are now getting, seems to have very much stayed its progress.—Chas. Penny.

YORKSHIRE.

Tadcaster.—There are heavy crops of Peaches and Nectarines, but Apricots are not above the average. Trees that bore lightest crops last year are the best this. The crop of Cherries is good, and that of Plums fully up to the average, Victorias especially. Apples are abundant, and Pears fairly numerous. Of Strawberries, this year's crop is the lightest we have had for several seasons. Our staple sort, indoor and out, has hitherto been Keen's. Whole flats that bore heavy crops in 1874 and planted out on well-prepared ground, have been nearly all blind. We attribute this to the drought last summer, and, as our water supply was short, we could not artificially water them. Viscomtesse Hericart de Thury and one or two others did well on the same flat as that upon which Keen's failed. Other small fruits, such as Raspberries, Currants of all sorts, and Gooseberries, have been very productive, and of Walnuts there are very heavy crops. I may add that early Potatoes have been very good. We are lifting a border of Veitch's Improved Ashleaf now, and have no difficulty in getting 30 lbs. of fine Potatoes in a 15-feet row. I am glad to say we have seen no sign of disease yet.—H. J. Clayton.

Wortley Hall, Sheffield.—Apples and Pears, though not a full crop, are better than they have been here for some years. Apricots and Plums are only middling, Cherries are good, all small fruits most abundant. The crop of Strawberries is unusually heavy. Hericart de Thury eclipses anything I ever saw for a heavy crop and long continuance, but everything is much damaged by rain, above 11 inches having fallen since the beginning of June, and the greater portion of that within the last few weeks. Everything is late here as usual—early Cherries on a west wall being not more than fully ripe, Black Prince Strawberry still bearing freely, and earliest Gooseberries just getting ripe. Indoor Peaches are a heavy crop, but there are none outside.—J. Simpson.

Ribston Hall, Wetherby.—We expect here a good crop of Apples, although a few of the trees suffered from 9° of frost whilst in full bloom. Ribston Pippins is our favourite dessert Apple, but the trees suffer from canker. Apricots upon south walls are very productive; on west aspects they are failures here. The crop of Cherries is good, as well as that of all kinds of Currants. Gooseberries are a very heavy crop. The crop of Medlars is light. Peaches and Nectarines are fairly abundant, and the same may be said of Pears upon walls, but this fruit is rather light upon the pyramids, as they suffered from early frost. Plums I never saw better. All kinds are very heavily laden; whilst many of the sorts, such as Victoria, Michelson's, Coe's Golden Drop, and Washington, we have been obliged to thin with the scissors to prevent the trees being broken. Raspberries are plentiful, but the fruit is small. Strawberries are lighter than we have had them for some time. They suffered very much from the wet weather. British Queen, Sir Harry, Sir J. Paxton, Stirling Castle are fine; Keen's Seedling, and Elton Pine do well with us. Eleanor is grown very extensively about Knaresborough, four miles from here, for the Harrogate market; it is a fine late kind, but will not grow here.—Thos. Jones.

NORTHERN DIVISION.

Cumberland.—Whitefield House, Carlisle.—The crops of Apples, Pears, Plums, and other autumnal fruits, do not at all correspond with the wondrous show of blossom which we had in spring. After a winter of unprecedented length and severity, every flowering tree and shrub, large and small, no matter whether worn out with age or newly planted, were one mass of bloom; on Pears, Apples, and Plums, very little of it set, and I observe that on those Apple trees, on which there is any fruit at all, it is in clusters like a bunch of Grapes, which has a singular appearance. Some dwarf Pear standards have very fine fruit on them, and are coming into a sheet of blossom at the same time. The same is the case with flowering Thorns, the Pyracanthas, and other shrubs. The Ribston Pippin—by far our best and most certain Apple—has failed this season. The next best for heavy and certain crops are Emperor Alexander and Lord Suffield. Most of our famous old Apples, such as Housewife, Keswick Codlin, &c., are nearly extinct, and I am of opinion that it has been a great mistake to let these certain bearers die out and supplant them with so-called superior sorts, chosen by their fruit at horticultural shows, without ascertaining first whether or not they would stand the climate and situation. Cherries have been a very heavy crop; Currants are so plentiful as to be unsaleable; Gooseberries are weighing the bushes to the ground; many of the berries being as large as Walnuts. Since the Small-bird Preservation Act has come into force, blackbirds and thrushes have increased to such an extent that the quantity of fruit they destroy in a day is beyond calculation. Killing twenty or thirty a day makes no perceptible diminution of their numbers. I hear they have migrated to and attacked the fruit gardens close to large towns in immense flocks. I am afraid that by this well-meant enactment we have destroyed the balance of Nature to our detriment.—J. Gillbanks.

Northumberland.—Shawdon Hall, Alnwick.—Fruit crops in this district have not been so good for fifty years as they are this season. In many places Gooseberry and Currant bushes are breaking down under their loads of fruit; Raspberries are exceedingly large and plentiful. Strawberries in some places suffered, in the first part of the season, from want of rain; but, upon the whole, the crop is an average one. Of Apples the crop is perhaps the heaviest that has been seen in this district for a number of years; the trees, too, are healthy, and the fruit forward for the season. Wall fruit is not so abundant as might have been expected from the profusion of bloom that was upon the trees in spring. Apricots, though in some places thin, may, upon the whole, be pronounced an average crop. Plums are the heaviest crop that have been seen for years. The abundance of fruit this season is to be attributed to the lateness of the spring, which kept back the blossom nearly a month behind the usual time. The crops, nevertheless, are as early this season as in other years. This may be owing to the fact that during April, May, and June, we had little rain, and up to this time we have escaped the deluges of it so prevalent in many districts.—J. Thomson.

NORTH-WESTERN DIVISION.

Lancashire.—Waterdale, St. Helens.—The crop of Apricots is below the average, the best varieties being Blenheim and Moor Park. Of Apples, generally, there is a good crop, the best being Alfriston, Cellini, Keswick Codlin, Greening's Pippin, Hawthornden, Lord Suffield, and Devonshire Quarrenden. Pears have produced excellent crops both on walls and standards, the best are Beurré d'Aremberg, Beurré Diel, Beurré Easter, Beurré Superfin, Comte de Lamy; for walls, Glou Morçeau, Louise Bonne of Jersey, Marie Louise, Passe Colmar, and Winter Nélis. The crop of Plums is an average one, the following being the best varieties:—Early Prolific, Jefferson, Kirke's, Orleans, Magnum Bonum, Denyer's Victoria. Peaches and Nectarines are as plentiful as they are most years; whilst of Cherries generally the supply is fair, whilst that of Morellos is excellent. Strawberries have been damaged much by rain, but there is, notwithstanding, a good set of fruit; the best varieties are, Vicomtesse Hericart de Thury—which on this cold clay supersedes all others—Sir Charles Napier, President, and Sir Joseph Paxton. Of small fruits there has been in all cases a good supply, but Gooseberries and Raspberries have suffered from the wet.—James Smith.

—— **Knowsley.**—There is an unusually large crop of Apples here, which on many trees has luckily been severely thinned by the wind, &c. Pear trees have been also very productive, and stand in need of more thinning than can be done to them. Apricots are all that could be desired, as far as the crop and the general health of the trees go, but I think more branches than usual have gummed off this year. There is a splendid crop of Peaches on the trees, which are clean and in good health, and we only need fine summer weather to finish the fruit well and mature the wood for another year. Cherries are abundant, but the fruit has suffered a little through the heavy rains and dull weather which has caused some of it to burst, but I am glad to say that, as yet, I have not seen a vestige of the black fly, notwithstanding the trees were smothered with that pest last year. The crop of Plums is moderate. Gooseberry and Currant bushes are loaded with fruit, some of the older ones having given way under their burden, and both these have burst and moulded on the trees to some extent. Of Strawberries, we have had a large crop of fine fruit, but I am sorry to say that a great portion of it rotted on the ground through the wet weather. Raspberries, too, have been a heavy crop, but have suffered from too much wet.—F. Harrison.

—— **Ormskirk.**—Peaches, Nectarines, and Apricots, owing to the absence of spring frosts are very plentiful; but there are comparatively few Apricots grown about these parts. Of Apples there is an average crop, which is always the case when the trees bloom superabundantly. The late prolonged cold rainy weather has caused a very considerable portion of the fruit to drop from the trees, which however, will allow the remainder to grow large, and the trees will also be benefited by this natural thinning. There is in many places a considerable amount of blight on the trees, the foliage in such cases is nearly gone, and this has caused the young fruit to turn yellow—apparently ripe, even in July. All kinds of Apples do well, and Lord Suffield is grown in quantity for market, and is a general favourite, as it comes into bearing so soon; the old Hawthornden always bears great crops, and a free-bearing variety called Rollisson is largely planted. Pears are abundant, more so than for many years; all kinds seem alike, and trees scarce ever known to bear before are loaded. For walls the Marie Louise is fast driving the old Jargonelle out of the field; about here, however, it is rather tender. A variety called the Hazel Pear bears prodigious crops. Plums are abundant; the Victoria does admirably. A district about 6 or 7 miles from Liverpool is famous for the Halewood Plum, taking its name from where it originated. Strawberries have been plentiful. Though Strawberries succeed in damp boggy ground, the excessive moisture in July has caused great loss. The variety Vicomtesse Hericart de Thury is the best to stand the wet. I know a case where a number of these Strawberries having been soiled were actually washed before going to market, and seemed none the worse. Gooseberries and Black Currants have been abundant, especially the former. I have been talking to a person who had the same day despatched half-a-ton of these fruits from a cottage garden. What are known as prize Gooseberries are very little grown, few people caring to grow them. The three principal sorts grown are Whitesmith, a heavy cropper, good for gathering green; Aston Seedling, the best preserving Gooseberry grown; and Crown Bob, a large rough red, a fine table berry when fully ripe, and the most popular Gooseberry grown.—Thomas Williams.

A NEW SPECIES OF SEDUM DISCOVERED BY THE LATE JOHN STUART MILL, IN ASIA MINOR.

Amongst the plants of the late J. S. Mill which have been presented by Miss Helen Taylor to the Kew Herbarium, are full and complete specimens of a very distinct species of Sedum, marked by him "Sedum, species nova," and gathered by himself between Brusa and Gimlek, in Anatolia, in July, 1862. As it is not included in Boissier's "Flora Orientalis," and still remains unnamed and undescribed, I wish now to place it on record.

Sedum Millii, Baker, n. sp.—Perennial—Stems half a foot to a foot long, decumbent in the lower half, then assurgent, 1 to 1½ lines thick, terete, clothed throughout, not very thickly, with short, spreading, or deflexed whitish hairs; internodes of the flowering stems, 1 to 1½ inches long; leaves, in opposite decussate pairs, sessile, blunt, entire, oblong, with a cuneate base, obscurely ciliated, on the edges, 12 to 21 lines long, ½ to ¾ inch broad at the middle; flowers in a very lax terminal cyme, with two to five, usually three, scorpioid branches, which are mostly 2 or 3 inches long, and bracteated at the base by leaves like those of the stem considerably reduced; flowers, not more than six to eight to the longest branches, so that they are ¼ to ½ inch apart, the lower on short thick pedicels, the upper sub-sessile; sepals, lanceolate, glabrous, ⅛ of an inch deep; petals, linear, acuminate, bright red, three times as long as the sepals; stamens, half as long as the petals, the anthers oblong, red-purple; carpels, glabrous, ¼ inch long, the inner side distinctly angled just above the base, and the carpel spreading almost horizontally above this angle; style, half a line long, tipped with the minute capitate stigma. The plant, by its general habit, spaced opposite blunt leaves and showy bright red flowers, recalls at once S. oppositifolium, Sims (Bot. Mag., t. 1,807), and S. spurium, M. Bieb. (Bot. Mag., t. 2,370), both of which are common in cultivation. From both these it is separated at a glance by its hairy stem, entire leaves, lax cymes, and stellately divaricating carpels, but it quite matches these in calyx, corolla, and stamens. The only other species with which I am acquainted that come near it are S. stoloniferum, Gmel. (better known under the name of S. ibericum, Stev.), which is a much smaller and more slender plant, with leaves both stalked and toothed, and the East Siberian S. Middendorfianum, Maxim. Prim. Amur., 116, which has the same lax inflorescence and the same stellately-divaricating carpels, angled a little above the base on the inner side, but totally different foliage.—J. G. Baker, in "Journal of Botany." [We hope this Stonecrop, evidently valuable as a garden plant, may soon be added to our collections, and may long be grown therein as an interesting souvenir of the botanical work of our great political economist.]

PARIS LAWN TURF.

As the freshness and texture of the lawns in Paris gardens is a frequent subject of remark, we have thought it well to translate the following account of how they are formed. Nothing can surpass the beauty and texture of our own garden carpets; but the Paris system may be worth trying in certain cases in which our own fails, owing to the climate in some parts of the world. In any case, the information conveyed by M. Rafarin, principal gardener of the city of Paris, in a letter to a French nurseryman, is worth recording. Without a smooth glade, our gardens would lose half their charms. In order, therefore, to obtain the best results in forming a lawn, three points must not be lost sight of:—1st, preparation of the soil; 2nd, choice of Grass seed; and, 3rd, keeping.

I. Preparation of the Soil.—In the first place, it must be well drained, *i.e.*, if it be too damp, swampy, or if it rests upon an impenetrable sub-soil. Secondly, light dry soils must be enriched by means of manure, as must also clayey, damp, or cold soils. Thirdly, the soil should be mellowed by repeated ploughings and harrowings, taking care, during each operation, to break the clods, and to extract the stones and roots of weeds. Fourthly, it must be made even by levelling a fortnight after it has been ploughed; then roll it, break the clods afresh, and finally sow the seed.

II. Choice of Seeds.—It is indispensable that the seeds used be of the best quality. Having chosen the seeds, mix together those that resemble each other in size, form, and weight, taking care that they are suitable for the nature of the soil on which they are to be sown. The following are four mixtures that are very commonly used in France; they should, however, only be considered as examples, and may be modified according to circumstances.

FIRST MIXTURE—FOR A FRESH SOIL, IMPROVED AND PREPARED AS JUST DIRECTED.

	lbs.
Agrostis stolonifera	22·0
Bromus pratensis	11·0
Cynosurus cristatus	19·8
Festuca tenuifolia	22·0
„ rubra	33·0
Anthoxanthum odoratum	11·0
Poa trivialis	11·0
„ pratensis	22·0
Lolium perenne	66·0
Trifolium repens	2·2
	220·0

The amount will suffice for an area of rather more than 2 acres. For smaller pieces of land and for borders a larger proportion must be used.

SECOND MIXTURE.

	lbs.
Agrostis vulgaris	11·0
Avena flavescens	11·0
Bromus pratensis	11·0
Cynosurus cristatus	8·8
Festuca tenuifolia	11·0
„ heterophylla	11·0
„ ovina	22·0
„ rubra	11·0
Anthoxanthum odoratum	11·0
Poa trivialis	11·0
„ pratensis	11·0
„ nemoralis	11·0
Lolium perenne	77·0
Trifolium repens	2 2
	220·0

THIRD MIXTURE—FOR SHADY GROUND, AS, FOR EXAMPLE, THAT BENEATH TREES.

	lbs.
Aira elatior	22·0
„ flexuosa	22·0
Festuca elatior	22·0
„ tenuifolia	11·0
„ heterophylla	22 0
„ rubra	22·0
Anthoxanthum odoratum	11 0
Holcus lanatus	11·0
Poa trivialis	8·8
„ pratensis	11·0
„ nemoralis	11·0
Lolium perenne	44·0
Trifolium repens	2·2
	2220·0

For small patches, an increase of 20 to 50 per cent. is required.

FOURTH MIXTURE—FOR CALCAREOUS SOILS.

	lbs.
Agrostis stolonifera	11·0
„ vulgaris	11·0
Bromus pratensis	33·0
Cynosurus cristatus	11·0
Festuca ovina	11·0
„ rubra	22·0
Anthoxanthum odoratum	19·8
Poa trivialis	11·0
Lolium perenne	88·0
Trifolium repens	2·2
	220·0

For borders and small plots, from 20 to 50 per cent. more should be used. Sowing should take place in the spring in the case of stiff, damp, or cold soils, and in autumn, in the case of soils that are light, dry, or scorched, and, so far as is possible, when the weather is calm, and when the earth is cool without being damp. Each variety of seed, of which the mixture is composed, should be sown separately, commencing with that of which there is the largest quantity, and which requires to be buried at a greater depth in the soil than the others; and finishing with that of which there is the smallest proportion. After each sowing, harrow with an implement of a power proportionate to the depth at which each kind of seed has been sown. Then beat down the earth (especially if it be light), and scatter a layer of earth to the depth of an inch or so. Finally, water when the soil has become dry to hasten germination, which will take place in from eight to forty-five days according to the variety.

III. Maintenance.—The old popular saying—"Water makes the Grass," proves the importance of frequent waterings for maintaining turf in perfect order. It is necessary to water after each cutting and whenever the ground becomes too dry. Each year in autumn and in spring, during cool, but not damp, weather, after having given the turf a vigorous harrowing, and, above all, those parts which are covered with Moss, first remove the Moss and noxious weeds—an operation which is indispensable, but which is too often neglected, and which it is necessary to repeat during the course of the year, whenever they make their appearance; secondly, sow the seed over all parts which are bare; thirdly, scatter upon the surface (use guano if the ground requires enriching) a layer of good soil; fourthly, roll with a roller, the weight of which is adapted to the nature of the soil. If the preceding instructions are carried out in their integrity, nothing remains but to speak briefly of the operation of mowing, which may be done either with the scythe or mowing-machine. Lawns should be mown with the scythe once or twice a month in spring, three times a month during the summer, ceasing towards the end of October, so that the Grass may grow again before the winter frosts set in.

RAISING DRACÆNAS IN THE UNITED STATES.

The stems are procured, in the first instance, from Cuba, selection being made of those that are soft. If you order stems that are of hard wood, like a walking-stick, they begin to split through the centre, and then they take too long to start; I refer to the joints on the stems. As a consequence, soft stems are preferable. They are laid flat on the benches of the propagating-house, sand, to the depth of 3 or 4 inches, being used. On this sand the stems are laid at distances of 2 inches apart, the whole being covered with sand. The surface of the stems being discernible, the spaces between them are used for striking soft-wooded plants, which do not interfere with the cuttings produced from the Dracænas. As soon as the cuttings are from 2 to 3 inches long they are taken off, not with a portion of the old wood, as some growers do, but a quarter of an inch from the stem. The eye left will yield two or more cuttings, a circumstance worth considering where the raiser has a market for this class of plants. The cuttings are inserted in sand in the warmest part of the house, say 150 to the square foot; and, as soon as rooted, they are potted off into 2-inch pots, and placed in a close house with a high temperature. When ready for re-potting they must be shifted into 4-inch pots; and here I would suggest, for their summer growth, manure-pits of such construction as those used in England for Melons and Vines in pots intended for fruiting the following season. This plan will pay a grower in the United States best, as it supplies him with bottom-heat, which he can regulate at intervals, and the climate supplies an abundance of surface-heat. If grown in pits plunge the pots to the rims in coal ashes. The plants should be kept thoroughly supplied with water and syringed with the hose morning and evening. They should be shaded from say half-past nine in the morning until four in the evening, light muslin being used for this purpose. By the end of September, if the plants are properly managed, they will be in 5-inch pots and 15 inches high, and, if well coloured, they should then sell at from £3 10s. to £4 10s. per 100, trade price. If kept until spring, and larger plants are required, the following treatment is pursued:—The balls are reduced one-third, and the plants are replaced in the same sized pots, and set in the warmest house; all the heat possible is now supplied, and plenty of water and moisture is kept up. As soon as they have filled their pots with roots, they are shifted into 6-inch ones, and are grown on in heat during the summer, shading, &c., being attended to, as already directed. Thus treated, by the middle of September the plants will stand from 2½ to 3 feet in height, and will be worth £21 per 100, at wholesale prices, and from 8s. to 10s. each retail. In the United States, these plants are used by the thousand, for there they are produced for the masses, not for the few. They are employed for hanging-baskets and vases, and will yet be used in ornamental gardening; they are also used for decoration. My remarks refer to the coloured varieties. The other kinds are not propagated from stems, but are imported from England and Belgium. Compost for Dracænas should be like that for Roses, heavy and rich, one-half strong fibrous loam, the other old well-rotted manure, with a slight addition of superphosphate to the whole. No drainage is necessary for this class of plants, nor for similar ones in the States. It is a mere loss of time to resort to drainage. With Camellias, Azaleas, and other plants, it is different. Dracæna terminalis, considered an old variety in England, is, in the United States, in much request. JOHN HOWATT.

Botanic Gardens, Regent's Park.

Rheum Emodi.—This is a fine herbaceous and large-foliaged plant, and should be planted in groups in the turf of the pleasure ground in good soil. It grows about 5 feet high, and is very imposing with its wrinkled leaves and large red veins. It is, however, surpassed in appearance by R. officinale, of which I have lately procured a plant, and of which there is a fine specimen in the herbaceous department at Kew.—OXON.

Beds of Cannas on Lawns.—I have had occasion once before this year to make a note on the beauty of Cannas on lawns. The late copious rains have so invigorated them that they have leaves of an unusual breadth. It is this splendid development of foliage of an appearance so different from that of ordinary leaves, that makes them so striking. Put them in large beds (my beds are 12 feet in diameter), with a good, high, and bold edge, with a contrasting inner circle, and they will be the great attraction of the place. Two rows of Stachys lanata make a capital edge; it is vigorous in constitution, easy of propagation, and perfectly hardy, and of a dusty-miller whiteness. Inside it, a good belt of Bell's Crimson Beet makes a good contrast when it gets up sufficiently high to overtop the Stachys and cover up the bareness of the stems of the Cannas near the soil, thus making a bed which is the admiration of everybody.—N. H. P.

Amateur Exhibitors at Flower Shows.—Is it to be taken as a rule without an exception that a gentleman, employing one or more gardeners, cannot be capable of taking such a practical interest in his garden as to entitle him to be considered the exhibitor of his own plants or flowers, however much he may appreciate them, or however carefully he may have watched and tended them? This seems to be the prevailing idea at all our floral exhibitions, if we may judge by the prize-cards placed upon the successful specimens in the amateur classes, which almost invariably inform the passing spectator that the beautiful plants or cut blooms to which the prize has been awarded are "exhibited by Mr. ———, gardener to ———, Esq." I must confess to a feeling of disappointment and annoyance when, having entered my own name as the exhibitor of certain flowers, to the collection of which I have for some years devoted considerable personal attention, I find so little credit given to my amateur efforts that I am turned for the occasion into a professional gardener. Such was the case when, having exhibited my favourite Carnations at the Royal Horticultural Show on the 21st July last, the award of the judges was thus reported:—"Class 22. Twelve Carnations (amateurs).—Second, Mr. Burnaby, gardener to T. F. Atkins, Esq." Now, however much I may rejoice in being associated with the fraternity of gardeners, or however little I may care to have my name disintegrated, and to find myself split into two individuals, I must be excused for objecting to be denied the honour of being duly represented as an unprofessional exhibitor of my own pet blooms.—T. F. BURNABY-ATKINS, *Halstead Place, Sevenoaks.*

A TIMBER-RAFT covering 20 acres of surface and containing 3,460,000 feet of timber, broke up against the International bridge of the Niagara river, some little time ago, and went to pieces. About one million feet of timber lodged on the head of Grand Island. Much of the remainder went over the falls.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

AUGUST 4TH.

AT this meeting some interesting new and rare plants were exhibited by Messrs. Veitch & Sons, Mr. W. Bull, Mr. B. S. Williams, and others. Cut Roses of excellent quality came from Mr. W. Paul, and Messrs. Paul & Son also showed some new varieties. A Laburnam was exhibited by Mr. Smith, of Worcester, which, in addition to being new, illustrated in a remarkable manner the influence which buds, in some instances, have upon the stocks in which they are inserted.

First-class Certificates.—These were awarded to the following new and rare plants:

Cytisus Laburnum aureum (Smith).—This is a distinct and beautiful hardy foliaged plant, the leaves being of a bright golden-yellow colour. It succeeds perfectly on the common budded Laburnum, and, curiously enough, the green-leaved stock on which it is worked not unfrequently throws out golden variegated growths below the point of union, as sometimes happens when a variegated Jessamine has been budded on a green-leaved variety.

Cibotium Menziesii (Bull).—This is a strong-growing tree Fern, with a thick massive trunk. Its fronds, which are long and tripinnate, are of a bright green colour, leathery in consistence, and very gracefully arched. The lower part of the rachis is densely covered with dark brown hairs, which add materially to the characteristic appearance of the plant.

Dracæna Rex (Bull).—This is a strong-growing and distinct plant, resembling, in general habit, D. Mooreana; but, in this case, its bronzy leaves are streaked with crimson in the way of those of D. terminalis. Its foliage is broad and gracefully arched, and, as a decorative or exhibition plant, it is well worth general culture.

Streptocarpus Greenii (Green).—This is a new hybrid, obtained between S. Saundersii and the old S. Rexii. The foliage, which is broad, glossy-green and Gloxinia-like, resembles that of S. Saundersii, while the flowers are exactly like those of S. Rexii in form and colour, which is delicate mauve, streaked with purple, five to seven flowers being borne on an erect spike. The plant exhibited had three fine leaves, and ten or twelve flower-stems. This hybrid is a decided advance on both its parents, and is well worth culture as a decorative stove plant.

Alsophila philippinense (Veitch).—This distinct Philippine Island plant, bears dense, green, crisped fronds, which are arched gracefully from the apex of a very slender stem. The young fronds are of a bright glossy green in colour.

Dracæna Taylori (Veitch).—This is a strong, broad-leaved, dense-growing form, well worth general culture as a dark-leaved foliage plant. It is a hybrid, obtained by crossing D. magnifica with D. Mooreana, its broad, shining fronds being of a dark bronzy-purple, with crimson petioles. It is the most massive and noble of all the Dracænas.

Adiantum princeps (Veitch).—This is a free-growing plant, indeed, one of the noblest of all Maiden-hairs; it has gracefully-arched fronds, fully a yard in length, tripinnate, and of a bright green colour, the rhomboidal pinnæ being delicately crisped or irregularly serrate along their margins. It is an ornamental stove Fern of the utmost value either for decorative purposes, or for those of exhibition.

Begonia Frœbelii (Frœbel & Co., Zurich).—This is a distinct plant, presumably a species with oblique heart-shaped hoary leaves, from 6 to 12 inches in length, and 7 to 8 inches in width. Its flowers, which are of a vivid crimson-scarlet, are borne on erect peduncles, 10 or 12 inches in height. It is an effective stove decorative plant, and will also prove valuable for hybridising purposes.

Hollyhock Le Grand (Chater).—A full flower of excellent form, and of a deep rosy-salmon colour. Of this variety a spike was not shown, but, judging from the cut flowers, it will make a worthy addition to this family of favourite flowers.

Rhododendron Prince Leopold (Veitch).—This is a distinct buff or yellowish-flowered variety of good habit, obtained by crossing R. Lobbii with Princess Royal, the last-named plant being itself a cross between the white R. jasminiflorum and the orange-scarlet R. javanicum.

Platycerium Willinckii (Veitch).—This is a strong-growing Hart's-tongue Fern, the fertile fronds of which are fully a yard in length. These are very smooth, and of a glaucous-green colour, drooping gracefully from the shield-like upper fronds. It is an epiphyte, and grows well on a block in a moist humid atmosphere.

Dracæna elegantissima (Veitch).—This is a dense slender-leaved variety, from 12 to 15 inches in height, the leaves being narrow, of a dark bronzy colour, margined with crimson. As a table plant it is one of the best of its class.

Asplenium ferulaceum (Veitch).—This is a very distinct and effective stove Fern, with bi-pinnate or rubra-decompound fronds of a bright glossy green colour. They vary from 1 to 2 feet in length, and are produced in a vasiform tuft from the rhizome. It is a native of Columbia, and, as is inferred by the specific name, closely resembles the foliage of some Ferulas.

Alsophila australis var. Williamsii (Williams).—A noble tree Fern, with a distinct weeping habit, its bright green finely-cut fronds drooping gracefully on all sides, giving an umbrella-like aspect to the whole plant. The trunk is very stout, and from 6 to 8 feet high.

Woodwardia radicans var. cristata (Williams).—This is a very distinct form, the apex of the pinnæ and their divisions being crested. It is of free growth, and will doubtless become a great favourite with all lovers of Ferns. It is the first crested form hitherto obtained in this genus.

Stove and Greenhouse Plants.—Of these Messrs. Veitch & Sons staged an interesting collection, in which we remarked, among other things, a basket of the pretty Olearia Haastii, containing eight bushy little plants, each about a foot in height. It is a half-hardy shrub, with oblong Privet-like leaves and dense axillary clusters of white Yarrow-like flowers, which are very agreeably perfumed. As a free-blooming rock plant it well deserves culture, and, in the warmer parts of the country, will probably prove sufficiently hardy to stand out of doors all winter. The same collection also contained a small plant of the rare Nepenthes marginata, bearing four or five fully-developed pitchers of a deep red colour covered with a bluish or downy bloom and blotched with deeper red; their margins are of a bright crimson colour, below which is a band of buff-yellow about a quarter of an inch broad and of a leathery texture. Associated with it were likewise Dracæna elegantissima, a narrow-leaved and very dwarf-growing variety of a bronzy colour margined with crimson; and Croton Cooperii, a strong-growing variety, with leaves nearly 18 inches in length and about 5 inches broad, bright green in colour, blotched with golden-yellow and suffused with red. Lilium Neilgherense was also staged in this group, the flowers of which remind one of L. longiflorum, the leaves being very narrow however; and the slender flowered stem rarely over 18 inches in height. It is a native of India, and closely resembles L. philippinense; but the leaves are broader than those of that species. The same firm also showed Dracæna Taylorii, one of the strongest and most robust-habited plants in the genus, a hybrid between D. magnifica and D. Mooreana; Cissus Endresi, a strong-growing climber, with heart-shaped leaves of a velvety-green colour, the veins being of a deep purplish-brown; and Adiantum princeps, a strong-growing and very effective species, with bright green tripinnate fronds, full a yard in length. Several new Hybrid Rhododendrons likewise came from Messrs. Veitch & Sons, for the most part crosses between a hybrid raised from R. javanicum and R. jasminiflorum, named Princess Royal; and a species named R. Lobbii. Two of these were certificated. Mr. W. Bull staged several new Cycads, and a very effective group of Orchids, Ferns, and other plants. Among these we noticed Macrozamia cylindrica, with elegantly plumose foliage, of a deep glossy green colour; two plants of Lælia elegans var. Andersonii, each bearing a spike of bright rosy-purple-crimson-lipped flowers; and a small plant of the summer-blooming Zygopetalum crinitum, bearing a spike of flowers which closely resembles those of the winter-flowering Z. Mackayi. A plant of Macrozamia plumosa, with finely cut fronds, and a young fruit, was also shown in this collection; together with a double-lipped form of Cypripedium superbens and a new Japanese Lily, in the way of L. lancifolium, but much dwarfer. Mr. B. S. Williams staged a very effective group of Stove Ferns, Palms, Pitcher plants, Ixoras, and similar subjects, to which a vote of thanks was awarded. In this collection we remarked well-grown specimens of Adiantum gracillimum; A. Farleyense; Ixora Dixiana, a dense-growing free-flowering orange-scarlet variety, well adapted for exhibition or stove decoration. In the same group we noticed the bright scarlet Hæmanthus puniceus and H. tenuiflorus, both well-known Cape bulbs; Bertolonia Van Houttei, Reidia glaucescens, and other new or rare plants.

Miscellaneous Subjects.—Some eight or ten stands of cut Roses were shown in excellent condition by Mr. W. Paul, of Waltham Cross. Mr. T. Laxton, Stamford, also had one or two stands, in which we remarked the following varieties, viz.:—Empress of India (H. P.), a full deep velvety-crimson of good form; Marchioness of Exeter (H. P.), a bright rosy variety, very full in the centre, the closely imbricated petals being revolute at their margins; and Dr. Hooker (H. P.), a full deep rosy-purple variety, the outer petals of which are velvety in texture. Messrs. Paul & Sons showed Captain Christy in excellent condition, and half-a-dozen fine flowers of Duke of Connaught (H. P.), which obtained a second-class certificate. It is a full velvety-crimson Rose, deliciously sweet-scented, of good form and substance. A fine stand of the new blush Madame Lacharme was also furnished from Cheshunt. These flowers had been grown in the open air without any shade or protection, and were of excellent quality and substance. Mr. R. Dean showed a stand of seedling Hollyhocks, of good quality, the colours being buff, straw, crimson, rose, and bright red. Some striped seedling Petunias were also very bright in colour. In this collection was, likewise, shown a flowering plant of the double-flowered yellow Auricula, a kind which bears flowers as large as a shilling and four to five on a truss, the colour being bright golden-yellow. Mr. Dean also exhibited half-a-dozen plants of the new Stock Mauve Beauty, forming perfect pyramids, from 12 to 15 inches in height, of lilac or mauve-coloured flowers, and perfectly double. A fine collection of new Hollyhocks, both cut flowers and spikes, came from Mr. W. Chater, Saffron Walden. Among these we noticed Joy, bright rose; Bullion, yellow; Mulberry Gem, dark purplish-brown; Queen of the Yellows, straw colour; Venus, rose; and Beauty of Walden, a rosy-salmon, to which a second-class certificate was awarded; a similar award was also made to Ianthe, a bright rosy-crimson. Among the cut spikes the following were very effective, viz.:—Regalia, crimson, very full in form; Sunset, light rosy-salmon; Model, bright red; Golden Queen, Sulphur, and Rosy Gem, bright rose. Mr. Douglas exhibited a fine cluster of the pure white Banana-scented Rosa bracteata, or "Macartney Rose," as it is popularly called, an evergreen climbing species, deliciously scented, the flowers being of snowy whiteness and the foliage of a deep glossy green. Mr. Green had a Saxifrage, named Cæsia major, from Mentone. It is a dwarf dense incrusted kind, growing in semi-circular tufts, and excellent for rock-work. Mr. G. F. Wilson staged a strong plant of the old Hyacinthus candicans, a kind with long glaucous, Leek-like foliage, and erect spikes of white bell-shaped flowers; it is nearly hardy in some localities, and is a very desirable plant. It received a first-class certificate a year or two ago, when shown by Mr. Wilson Saunders.

Fruit.—Mr. Miles, gardener to Lord Carrington, at Wycombe Abbey, exhibited two varieties of the Charlotte Rothschild Pine; one was stated to be similar to the Moscow Queen and of good flavour, with a large quantity of juice; the other, which is the true Charlotte Rothschild, had flat pips, larger than those of any Queen, indeed, the fruit closely resembled that of the Smooth Cayenne, but the leaves are margined with dark purplish spines. Mr. W. Paul sent a dish of Citron des Carmes Pears, and Mr. Owen, Broughton Gardens, West Derby, near Liverpool, showed a brace of seedling Cucumbers of good quality. Mr. Whittaker, of Crewe Hall, Cheshire, sent two seedling scarlet-flesh Melons.

Mr. Jones, Royal Gardens, Frogmore, received a first-class certificate for the Frogmore Early Apricot, a small but highly-flavoured kind, which ripens in July on the open wall, and one which is well worth a place as the earliest Apricot known.

A Substitute for Rain.—It seems by no means improbable that some scientific and inventive mind will find means to do away with the need for rain. Good cultivators already do this in part by mulching newly-set trees, keeping the soil moist and light by deep and thorough pulverisation. The air is always charged with moisture, as we can see on the dryest, hottest day by the drops deposited on the surface of an ice pitcher. A French chemist, M. Paraf, has found this in chloride of calcium, which he has successfully applied in times of drought to sand hills, road beds, Grass, and all kinds of soils. One application will condense and retain moisture three days, while, if applied by irrigation, the water would evaporate in an hour.

Magnolia grandiflora near London.—There is a specimen of this fine evergreen here 22 feet high, and measuring 51 feet round, the foliage touching the Grass on the lawn. It is a very fine lawn tree, and is loaded with flowers. —F. B.

Spinach Beet.—Where Spinach is in demand throughout the summer, this Beet makes a really excellent substitute. It merely requires to be sown in the beginning of April and to be thinned out to about 12 or 18 inches apart, and it yields a succession of succulent leaves from the middle of June onwards. It also makes a good market vegetable.—R. P. B.

Roses for Covent Garden in Winter.—Can you tell me what kinds of Roses are principally grown for Covent Garden Market in winter.—L. Collins, *Orange, New Jersey, U.S.* [Niphetos, Isabella Sprunt, Sofrano, Madame Falcot, Maréchal Niel, and Devoniensis.—T. A. Dickson, *Centre Row, Covent Garden.*]

Early Ascot Frontignan Grape.—Mr. G. F. Wilson, of Heatherbank, tells us that this Grape, raised by the late Mr. Standish, of the Ascot Nurseries, is one of the most valuable of all Grapes for the orchard house. Grown under the same circumstances as the Black Hamburgh, it ripens fully a month before that variety.

The Double-flowered Ivy-leaved Pelargonium (see p. 81).—This attractive novelty was raised by Herr Oscar Liebmann, of Dresden, from whom Mr. William Bull purchased the half-stock, with exclusive right of disposing of it in the United Kingdom, France, Belgium, America, and all other countries, Germany and Austria excepted, the right of distributing it in these two countries remaining with Herr Oscar Liebmann.

A New Vine Disease in Italy.—A circular appears in "L'Economista d'Italia," referring to a disease which has lately appeared among Vines in Italy. Excrescences and gall-tumers first appear, gradually extending to the foot of the plant, causing the stock to dry up. Entomologists have decided that the disease is caused by an insect of a species quite distinct from the Phylloxera, and believe it to be the Orchestes alni, which has hitherto been considered harmless as regards the Vine.

Uses of Barberries.—Though the fruit of several varieties of Barberry is eaten with safety, I should be careful in trying experiments with that of untried kinds. The common Barberry, if pickled in a green state, makes a fair substitute for capers; the bark is also used medicinally, and the ripe fruit makes the famous Rouen preserve. Syrup of Barberries and Fennel seed composed Simon Paul's fever drink, and the Egyptian physicians always at one period recommend the same drink in cases of plague.—Helen E. Watney, *Sandcliffe, Petersfield.*

Thread Worms.—What is the strange creature enclosed? When allowed to dry, it assumes the appearance of a dry skin; but, when placed in water, it becomes round and shiny, somewhat similar to a thin thread of Indiarubber; at least it did so several times, and wriggled about in serpent-like fashion.—John R. C. Taunton. [This is the thread worm named Gordius aquaticus. It lives in fresh water, and attains a length of from 7 to 10 inches. It is parasitic on insects in the earlier stage of its life.—A. M.]

Japanese Lacquer Work.—The Japanese lacquer, referred to at p. 92, is procured from one or more species of Rhus. R. vernicifera is probably the source of the principal supply; but, from accounts that have recently been published in the "Japanese Mail," and in the report of the British Consul at Kanagawa, it seems that R. succedanea, the fruits of which are known to yield the vegetable wax used in candle making, also furnishes some of the varnish. Abstracts of these accounts and reports will be found in the "Journal of the Society of Arts," vol. xxii., 1874, pp. 434, 787, and 1,000.—John R. Jackson, *Museum, Kew.*

Suitable Premises.—A great teetotal gathering is expected to take place next summer in Kew Gardens, in the new "Temperate House."—"Punch."

No. 195.] SATURDAY, AUG. 14, 1875. [Vol. VIII.

"This is an art
Which does mend nature: change it rather: but
The Art itself is Nature."—*Shakespeare.*

FORMATION OF MY WILD GARDEN.

To my mind there is no description of gardening equal to, in interest or amusement, that which has been termed the "wild garden." We have a large one here (about 5 acres in extent), which is rapidly becoming a mass of Pines, flowering shrubs, and hardy perennials. It leads out of the garden proper, commencing as a thin wood containing old-established trees; then we come to what was a long bare slope, but bare no longer; on each side the background consists of groups of the better kinds of Pines; in front of them are endless flowering shrubs; and towards the centre of the ground are smaller shrubs and hardy perennials in profusion. The whole of this ground was a wood of Spruce and Larch Firs—principally the former, planted seventy-five years ago; but, about fifteen years since, extraordinarily high winds from the south-west blew down, in a week, the greater part of them; these involved others in their ruin, and the few that stood soon succumbed when bereft of the shelter of their comrades. Most of the ground was dug and trenched, and then left alone, and provident Nature, as a matter of course, soon covered it with a wilderness of Elder and weeds of every description. But we have changed all that now, and six years ago cleared out all the rubbish and commenced the wild garden, a step I have never repented. Many of the hardy perennials are in beds, carpeted with dwarf Sedums and Saxifrages, but the principal number grow boldly out of the turf. A walk to one side leads to an old ruin (the origin of which is buried in the obscurity of time) surrounded by Yew trees supposed to be over 1,000 years old when a few of their companions were cut down. The ruin, being in a hollow, is approached by descending a few steps, and between the steps and the ruin comes the hardy Fernery, the low and rather damp situation and the partial shade seeming to suit the Ferns well, as many of them grow there as luxuriantly as in their native homes. As we are on the subject of Ferns, I will take the opportunity of mentioning for the benefit of your readers whose home (like mine) is not mild enough in winter for the Maiden-hair Fern to survive unprotected out of doors, that there is a very good substitute (in fact, almost a *fac simile*) of it in the shape of two of the Thalictrums (T. minus, a British plant, and T. adiantifolium). The latter, especially, so much resembles it, that visitors to my Fernery frequently, in fact generally, are under the impression that it is the Maiden-hair planted out of doors for the summer. I need not say that both species are perfectly hardy, and simply require the removal of the flower-stem as soon as it appears. But to return to our wild garden. The bank surrounding the Fernery, and a few feet distant from it, is covered with trailing plants of different descriptions, such as Honeysuckles, evergreen Sedums and Saxifrages, Lithospermums, Everlasting Peas, Coronilla varia, Vincas, and many other kinds. Several old Spruce Firs look gayer than ever they did in their lifetime. I had them headed, of course killing them (but, as they were nearly useless for timber trees, that did not much matter), and at their bases are planted either climbing Roses, good varieties of Clematis, Pyrus japonica, Virginian Creepers (both Ampelopsis hederacea and A. Veitchii), or other climbers, most of which seem to take kindly to their nurses. Any of the horizontal branches of the Spruces are, of course, left on their stems, to give the climbers a chance of running along them, and thence of falling gracefully down. Some, even, of the growing timber trees are pressed into the service, having to submit to the embraces of different varieties of variegated Ivies; and here I may mention a very fine Ivy, not variegated, though it bears a name sufficient to frighten any beginnner—Hedera rhomboidea obovata—with rich green leaves, which become bronzy in winter. In the wild garden, after it has once been carefully planted, the perennials are principally left to themselves. The gardener and his men look after the dressed grounds, but my wild garden I look after myself, with the help of an old lady, who does a little occasional weeding, and looks partly after the slugs and similar vermin, and partly after sticks and fallen branches for her own cottage fire. Having planted nearly everything with my own hands (the Pines, of course, excepted), I look on them with ten times the interest that I should do if I had left the arrangement to others, or even only given the orders. I did know once when every plant ought to appear in spring or early summer, but they have increased too fast for that now; however, it is all the better for that. The soil away from the wood is, unfortunately, not so good as I should like; gravelly on the hill side, and very stiff and cold in the lower part of the grounds. Fortunately, however, there is a large choice of hardy perennials suitable for every kind of soil, and the best way is undoubtedly not to go to the trouble of preparing soil for plants, but to grow only those which happen to suit that which you have; the stronger growing subjects (especially those with strong tap roots) most of which will be found in the large order of Compositæ, I place in the stiffer soil, and the doubtful perennials and more tender subjects on the higher ground and in lighter soil. We all know how plants suffer from the effects of frost when on low-lying ground, when the same plants on the uplands are unaffected by it; and this must be borne in mind when putting out subjects, and especially those of a permanent character.

Oxon.

THE BEST PHILADELPHUS.

Although the Mock Oranges "rank," as has been recently stated in your columns, "among the most effective and beautiful of perfectly hardy and deciduous-leaved flowering shrubs," still, they are not so much appreciated as they ought to be, and, indeed, are often rejected. Setting aside our most common Mock Orange (Philadelphus coronarius), whose odour is objectionable to many, and whose flowers are the least showy, all the other species and varieties are beautiful, and, if their snowy blossoms were set amid foliage as rich and glossy as that of the Orange or the Chionanthus, P. thyrsiflorus, or even P. grandiflorus, would rank as the queen of hardy shrubs. North America is the home of all the best of the Mock Oranges, the Old World specimens being few and small-flowered. I have long cultivated all that are hardy in our climate, and, among them, one which your correspondent (see p. 3) does not name. I received it, among other new plants, many years ago from England, under the name of P. thyrsiflorus. Loudon does not enumerate it in his "Arboretum Britanicum;" but, perhaps it was not introduced until after that work was published. It is distinct, and by far the showiest of the whole tribe. It blooms from four to six days later than P. grandiflorus, and has flowers of the same size, but of a clearer and purer white. It makes strong, straight, annual shoots, from 6 to 8 feet in length, the upper half of which is completely covered with blossoms. I counted to-day, on a two-year-old plant, thirty little axillary branchlets on one of last year's shoots, and each branchlet had eight flowers, making in all 240, in a space of 3 feet—fully sustaining its name of thyrsiflorus, for each shoot is a grand floral thyrse. Our plants were received some twenty years ago, and I had the curiosity to measure one to-day. It is 25 feet high, grows erect and pyramidal, and has twenty-four stems, six of the largest measuring 9 inches in circumference. Though standing so long in one spot, and crowded by some Norway Spruces, it annually throws up fresh young shoots, so that this year it was literally one sheet of snow-white flowers from the ground to the top—a huge and superb pyramid, and a grand study for those who admire Crinoline Azaleas instead of Nature's own unaided growth. This variety of Mock Orange may be distinguished at any season of the year from all others by the quantity of horizontal branchlets, covered with the old capsules, which clothe all the terminal shoots. We have large specimens of P. coronarius, inodorus, Zeyheri, verrucosus, latifolius, floribundus, laxus, grandiflorus, Satsumi, and thyrsiflorus; but the last is certainly the finest of the whole group.

C. M. Hovey.

Boston, Mass.

NOTES OF THE WEEK.

—— The present season, when various species of Yucca are in great beauty in our gardens, seems to be the best time to call attention to the extraordinary value of the family for garden decoration. We have often done so before, but the article by Mr. Hemsley, which we publish this week, and its accompanying illustrations, brings the matter down to the present state of our knowledge, as far as horticulture is concerned. Yuccas, as regards their habit and foliage alone, are the most tropical-looking and most distinct of all the really hardy plants which we possess; to estimate their value to the full we have, in addition, to consider their noble panicles of flowers thrown up in many parts of the United Kingdom as freely as on their sunny native plains. As to their capacities for picturesque effects in our gardens and pleasure grounds they are invaluable.

—— That the French should not grow Rhubarb or Seakale is not more curious in its way than that we do not grow the Irish Peach Apple in London gardens. It is far superior to any of the early Apples that come to Covent Garden at this season, and is of such a peculiar and good flavour that it would be considered delicious in this respect among the best Apples of any season.

—— Mr. Basset's plants, sold the other day, by Stevens, realised £1,006 4s. They consisted chiefly of Azaleas, Camellias, fine-foliage plants, Orchids, Ferns, and other stove and greenhouse plants, and were divided into 535 lots, some of which fetched from £1 to £16 5s. 6d. The last was for a double white Camellia, 6 feet high and of the same width.

—— From reports which have reached us respecting the condition and prospects of the Potato crop, obtained from almost every county in Great Britain and Ireland, we may safely come to the conclusion that, while in most parts of England, and especially in the south, the crops are seriously diseased, and the yield proportionately deteriorated, in Scotland and Ireland the Potato crop is abundant, and scarcely at all affected.

—— At a meeting of the Committee of the Horticultural Club held at the Club House, Adelphi Terrace, on Wednesday the 4th inst., Mr. George Deal was unanimously elected a member of the Committee in lieu of the late Mr. Standish, and the following gentlemen were admitted members by ballot:—The Rev. E. Norman, Edgeware; Mr. C. R. Stewart, Glasgow; Mr. H. C. Wilkins, Chipping Norton; Mr. W. B. Lewis, Weybridge; the Rev. C. C. Ellison, Bracebridge Vicarage, Lincoln; Capt. Christy, Buckhurst Lodge, Westerham; and Mr. H. P. Oakes, Newton Park, Bury St. Edmunds.

—— The bedding plants at Battersea, as well as those in Hyde and Victoria Parks, are, notwithstanding the recent heavy rains, in admirable condition. The dwarf-foliage or carpet bedding is, this year, very attractive, though somewhat colourless through want of sunshine, and this system is useful as affording bright masses of colour of a neater and much more permanent kind than that afforded by flowering plants, which, as a rule, present such a miserable appearance during stormy weather. The Calceolaria disease has broken out this season virulently in several of our London gardens.

—— Dr. Roden informs us that he has this season gathered an average of eight quarts of fruit from each plant of the British Queen in a large plantation. The plants are seven years old, and each is about a yard through. The fruit on these plants was finer than that on young ones, frequently running but twelve to the pound; some of the individual berries weighed as much as 1½ ounces, and sometimes more. The soil is light, trenched 12½ feet deep, made very solid, well manured, and never dug or forked after the plantation is made. About 2 inches of rotten manure is placed on the surface every autumn. The fruit is supported on little wire stands, and, in that way, kept perfectly clean.

—— Among hardy plants, now in bloom in London gardens, the following deserve more than a passing notice. Yucca flaccida forms an attractive object, isolated here and there on grassy slopes near the rockery in Battersea Park. Its spire-shaped columns of ivory-white flowers look strikingly beautiful, backed up by Brambles and dark-leaved evergreens. Pavia macrostachya is one of the most effective of all hardy trees or shrubs now in bloom, and is flowering freely in Battersea and Victoria Parks, as well as the Hospital Gardens at Chelsea. In the Royal Horticultural Gardens at South Kensington, some large clumps of the common Hydrangea are well worth notice, inasmuch as they show how this hardy shrub is suited for London gardens. In Victoria Park the mixed borders are now in excellent condition, being well stocked both with showy annuals and hardy plants. Conspicuous amongst the latter is the double-flowered variety of the golden-blossomed Helianthus multiflorus, the blossoms of which are as showy as those of a yellow Dahlia, whilst its esculent ally, H. tuberosus is employed with excellent results for forming stately masses of bright green foliage in thin portions of the shrubbery borders.

SITUATIONS FOR HALF-HARDY PLANTS.

Flower-garden plants may, perhaps, be divided into two classes, viz., those whose noble foliage makes them fit subjects for the natural or free style of gardening, as, for example, Cannas, Musas, and Castor Oil plants, and those of more humble growth, such as Alternantheras and Sedums, which are best suited for the elaborate and formal style in flower culture, known as carpet bedding. This mode of gardening is best adapted to exposed situations, as full sun-light is indispensable to the perfect colouring of the leaves, on which the main beauty of carpet bedding rests. They also thrive with increased brilliancy after heavy rains; and thus contrast strikingly with the weather-beaten appearance of ordinary bedding plants, whose floral display, as all of us know, is often sadly disfigured by heavy rains. When large plants are used in exposed situations they should consist of varieties not easily injured by the wind, such as Yuccas and Aloes, for no greater eyesore can exist in a garden than torn and lacerated foliage. It is to the first, or fine-foliaged class, to which I wish now more particularly to direct attention, as on the choice of a suitable situation for such plants depends our chances of success. Shelter on all sides is indispensably necessary; for, if it is provided on one or two sides only, the wind sweeps round or between the barriers with greater violence than if none existed to oppose its violence. Here we have situations well adapted for both classes of plants, the formal geometrical gardens being fully exposed to the south, but well sheltered on the north by lofty trees; while, a less formal garden, with large beds cut on the Grass, and surrounded on all sides by large wide-spreading Cedars, affords a situation in all respects suitable to show off to advantage the fine foliage of the many suitable subjects for this style of gardening. Where such situations do not already exist, shelter, by means of raised banks thickly planted with evergreens, should be provided before any attempt at this description of decoration is made; for the finer the foliage of plants placed in exposed situations, the greater is the damage done to them by storms. Here the average temperature is by no means high; but, by observing the following rules, we get as fine foliage as if we were in a more favoured district. This season has been more than usually sunless; yet, our Castor Oil plants are over 5 feet in height, and have foliage more than 2 feet in diameter. We sow these in light soil, in heat, in February; also Wigandias, Cannas, and such plants as are generally raised from seeds, and old roots of Cannas and Caladiums are started into growth in a gentle heat; for, unless the plants are large, and well hardened off by planting-out time, little success is the result. Light airy pits, or an orchard-house, are the best places in which to shelter such plants from cold winds, which in spring are most destructive to their tender growths. The soil for this class of plants should be rich and deeply cultivated, as, in addition to the large mass of foliage to be supported, the ground will require covering with some dwarfer-growing plants, as, in order to show their fine foliage to advantage, the larger plants require to be planted widely apart. During bright sunny weather too much water can scarcely be given, with alternate applications of liquid manure. Syringing over head is also very beneficial to most of them. Single specimens of choice plants are usually plunged in pots or tubs, and are, of course, entirely dependant for their support on an artificial supply of moisture. Daturas, and many other plants, succeed better under this treatment than any other. Tree Ferns and Palms are well adapted for plunging where the shade of overhanging trees would prove too dense for the satisfactory growth of more sun-loving subjects. But for all, without exception, complete shelter from wind is a point of much importance. J. Groom.

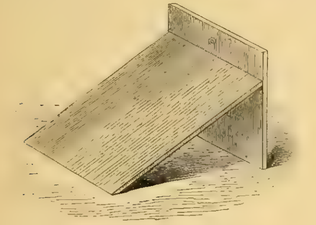
Henham Hall, Suffolk.

Shading Materials.—In reply to "Salmono," I beg to say, glass which will afford sufficient shade for Camellias during summer will be found to obstruct the light too much in the winter. The cheapest and best shading is limewash, and, if put on outside, and, while in a wet state, dabbed with a dry hand-brush, the appearance inside is almost equal to that of ground glass. Our Fernery and conservatory are both shaded in this way, and, as the autumn rains set in, it gradually washes off, just as the plants require more light and can stand what sun we get at that time.—J. Sheppard, *Woolverstone.*

THE FRUIT GARDEN.

PREPARING GRAPES FOR EXHIBITION.

Bunches of Grapes with symmetrical form, large and even-sized berries, high colour, and perfect bloom should always be chosen for exhibition. These qualities are, in fact, absolutely indispensable in all Grapes staged for competition, excepting where flavour is specified, when sometimes a badly coloured bunch of Muscat Hamburgh may be superior to some other variety of perfect finish. Black Grapes are generally shown in better condition than the white or yellow varieties, inasmuch as a slight tinge of green is not so easily seen in the former as in the latter. As regards form and size, a small well-shaped bunch of any kind is preferable to a large unshapely one; but the size and shape is not of so much importance as the colour and bloom. Moreover, when these are secured, flavour is seldom wanting. In cutting the bunch, 2 inches of the shoot on each side of the fruit stem should be left adhering to it, with which to carry or hang the bunch; its appearance is also thus improved. Great care is necessary, in cutting the bunch, not to touch or rub the bloom. Any large shoulder which may have been tied up should be kept in the same position until it is seen how it can best be placed. When allowed to rest upon the lower berries, the bloom is often more or less rubbed off, but the practised exhibitor knows the position in which his bunch will rest before it is cut from the Vine, and works accordingly. No bunch should ever be laid on one side and reversed afterwards. The less that Grapes intended for competition are moved about after they are cut the better; but, independently of this, the fine appearance of many bunches which are cut and kept with care, is spoiled through their being badly "set up," as it is termed, on the exhibition table. No bunch should ever be laid down flat, which is often the case with those shown in dishes, where the outline of the bunch (especially if the berries have been the least over thinned), is entirely lost. The accompanying engraving represents a very suitable and convenient stand for exhibiting Grapes. It is made of half-inch deal, the perpendicular back board being 12 inches high, and the sloping one 15 inches long. The latter is attached to the former 2 inches from the top. The width depends upon the number of bunches it is intended to carry. As from 9 to 12 inches are required to accommodate one bunch, not more than four bunches should be placed on one stand. This stand should be at hand when cutting the Grapes, and they should be placed on it at once in the position in which they are to rest during exhibition. A piece of twine or matting should be tied round the neck of the bunch, passed through the hole near the top of the stand, and fastened at the back with a knot. When conveyed any distance, a ribbon of soft matting must be put across each. Great care should be taken in doing this not to rub the bloom; if possible, the matting should be taken through amongst the berries, so as to rest on some of the principal stems. When two or three bunches are placed in one stand, the matting must be attached for support to a small tack between each bunch. This may be removed when the Grapes are finally placed on the exhibition table. The appearance of the stand is improved if it be covered with white paper below black Grapes, and green paper underneath yellow varieties; or the latter kind of paper may be used for fruit of all colours. A wooden box, with an inside measurement, corresponding with the dimensions of the stand, should be provided, in which both stand and Grapes may be placed, when being transferred from one place to another; no packing is needed, and the stand can be put in and lifted out without injuring a single berry. The lid should be fastened with screw nails, and care must be taken to keep the right side up. Some exhibitors are in the habit of "dressing" their bunches after they are staged by bringing some of the best looking berries to the front, and otherwise making them look as neat as possible, but this is of very little use; a bunch of Grapes, properly thinned and swelled, requires no "polishing." Each variety should have the name placed on the stand in front, and not at the back, of the bunch. When a large bunch is shown for weight it is always seen to much greater advantage in a hanging position than in any other. Some years ago Mr. Fowler, of Castle Kennedy, exhibited at the Edinburgh and Glasgow shows some very large bunches, which were suspended from the centre of a small arch. The effect was much better than if they had been lying as if thrown down on a flat board. The arch may consist of a bent Hazel stick or it may be made of strong wire with each end supported on a small wood block. It is a great improvement to twist a small Vine shoot, with the leaves attached, round the arch; and, if the end of the cut stem is wrapped in damp Moss it prevents the foliage from flagging. J. Muir.



Exhibition Grape Stand.

UNDERHILL'S SIR HARRY STRAWBERRY.

In reference to Mr. Dean's remarks respecting this Strawberry may I enquire if Mr. Turner means that the true variety of it has entirely disappeared? We have here what we have always considered to be the true Sir Harry; it has been in our possession upwards of fifteen years, and is a favourite on account of its good forcing qualities, being very free in starting and remarkably robust in constitution; the foliage is broad and of an intense green; the flower-stalks, which are strong, are thrown up well above the foliage. It is not a very heavy cropper, but its fruits all swell up to a fair size, which, for market purposes, is a recommendation. Its fruit is generally round and rather soft, becoming almost black when allowed to hang. The most striking peculiarity in its growth is the small number of crowns which it produces, and the enormous quantity of runners that it makes. We have plants of it which have been growing in the same pots several years, and which have not increased in crown although they have borne a good crop of fruit each season. It has, too, a greater propensity than any other variety with which I am acquainted to flower during the summer; in fact, with us a great portion of our plants begin to throw up a second crop of bloom before they were removed from the forcing-house. Two years ago we forced about 300 of Sir Harry, the fruit of which began to colour in the latter end of April, when there was a good crop of fruit; but, before the fruit berries were ripe, they had almost to a plant thrown up a second crop of bloom, and this, strange to say, was followed by a third set of flowers. They were allowed to remain in the house, and certainly presented a rather singular appearance, as before the first crop was quite picked the third trusses of flowers were fully out, thus furnishing a constant succession of fruit from the last week in April up to the first week in June. A correspondent in the "Revue Horticole" notices a plantation in full bearing in October, and enquires if the Sir Harry variety usually fruits at that season. As regards Sir Joseph Paxton, it is undoubtedly one of the finest Strawberries grown; and its noble appearance and firm wet-resisting flesh have created quite a little sensation in Covent Garden Market this season; while, as respects its travelling qualities, I can safely affirm them to be of the highest order. I saw this season a quantitity of Strawberries unpacked in the Centre Row after they had travelled a long distance. They consisted of Marguerite, President, and Sir Joseph. The first-named were much bruised, and President showed unmistakable traces of damage; but Sir Joseph came out almost as bright and fresh as when first gathered. J. Cornhill.

Byfleet, Surrey.

Pears on Different Aspects.—The difference that soil, situation and aspect make in the fruit-bearing capacity of trees, as well as in the size and flavour of the fruit itself is well known to gardeners, but in some cases the fact assumes so curious a form that it is worth noticing. A Josephine de Malines Pear, for instance, from a wall, and another from a standard, are so dissimilar that they might easily be mistaken for different kinds, and in other varieties differences of this kind are equally remarkable. Louise Bonne of Jersey on an eastern aspect produces small stunted fruit compared with that from cordons on the Quince stock..—RAMBLER.

Pinching the Shoots of Fig Trees.—To a certain extent, I agree with Mr. Groom when he says (see p. 54) that pinching the shoots does not benefit Fig trees, a result, however, which quite depends upon the time of the year at which the operation is performed. I have tried both plans, that is pinching out the terminal buds in the spring, and allowing the shoots to grow without stopping at all. In the latter case, however, they were thinned. I have also allowed the trees to grow quite wild, and away from the walls; and, under each and all of these conditions, I have had crops. Still, I consider everything depends upon the season. No care in the form of thatching, or otherwise protecting the autumn-formed fruits in winter will save them; they will fall off like withered Fir cones in the spring.—RAMBLER.

A Vineyard in Wales.—There are instances on record of the cellars of some of our British nobles being pretty well stocked with wine, the produce of Grapes grown in the open air on favourable spots on their own domain—such, for instance, as at Arundel Castle. The Marquis of Bute is at present engaged in preparing a piece of ground on his Cardiff estates for the formation of a hardy vineyard on a somewhat extensive scale. The ground selected is about 7 miles from Cardiff, at a place called Castle Coch, an old ruin which his lordship is having partly restored. This castle is situated on a tract of limestone some 500 acres in extent. It is well wooded to the north, east, and west, but lies quite open to the south, overlooking the Bristol Channel. The field selected here for the Vineyard is about 5 acres in extent, having a good fall to the south. It is of a light loamy soil, 2 feet deep, resting on the limestone rock, and requiring no artificial drainage. The only preparation necessary before planting is trenching, and slightly enriching it with stable-manure. The Marquis, in his earnestness to put the practicability of open-air culture of Grapes in favoured spots in this country to a fair proof, sent his gardener, Mr. Pettigrew, on a tour of inspection among the most noted French Vineyards last autumn, preparatory to the plan being put into practice. Two thousand Vines will be planted this year, and the same quantity next year, and so on until the Vineyard is stocked. They will be planted 3 feet apart each way; and it is proposed not to allow them to grow to a greater height than 3 feet. The varieties to be planted are Melier blanc and Gromier noir, in equal proportions—these being, from Mr. Pettigrew's observations on the Continent, the two most likely to succeed—both being very hardy and prolific. To further test the matter, 150 plants of Chasselas Fontainebleau are to be planted on the castle walls. It may be added that the French system of culture will be adopted generally.—"The Gardener."

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Peaches for the Midland Counties.—Rivers's new Peaches, Early Beatrice, Dr. Hogg, and Early Louise, have all borne excellent crops of first-class fruit here this season. We have just now (1st of August) Early Louise ripe on a west wall. I may add that Mr. Rivers is quite right as regards Plums—I did mean Rivers's Early Prolific.—R. GILBERT, *Burghley.*

Hellebore Powder and Gooseberry Caterpillar.—Mr. James Smith states that a solution of white Hellebore powder will kill Gooseberry caterpillar. Will he kindly inform me where this powder may be obtained?—A NOVICE. [Hellebore powder may be obtained from any respectable druggist at from 6d. to 8d. per lb.—JAMES SMITH.]

Grapes Cracking.—On Saturday last, from nine to twelve o'clock in the forenoon, and from half-past eleven to twelve o'clock at night, we had copious thunder showers, everything here being thoroughly drenched. On looking over my Vineries this morning (Monday), I find not all, but many, of the bunches of Black Hamburghs cracked in the second house, in which the Grapes are just swelling and colouring off. This, to me, is serious, as this is the house in which I can keep them hanging the latest. The Vines are old, and their roots are deep down, and out of reach of the sun, in our clayey sub-soil on a rocky bed through which the water cannot escape.—N. H. P.

Vines Not Fruiting (see p. 98).—Unripe wood is a frequent cause of unfruitfulness in the case of Vines as well as in that of other fruits, especially in small houses, in which there is not much air or sunlight. Your correspondent should lose no time in cutting away every growth except the main rods, and, if these are still green, the house should be kept somewhat close, maintaining 80° during the day, until the wood and leaves show signs of changing colour, when abundance of dry air should be admitted to ripen the wood. It makes no difference, as regards fertility, whether the Vines are propagated from cuttings or eyes.—J. MUIR.

Underhill's Sir Harry Strawberry.—Messrs. Steele, of Richmond, would be glad if Mr. Dean, of Bedfont, would inform them how long this Strawberry has been extinct.

THE GARDEN IN THE HOUSE.

POT VINES FOR DINNER-TABLE DECORATION.

POT Vines, bearing good crops of well-ripened fruit, are always an attractive object on the dinner-table, yet they are not so often fruited for this purpose as they should be. Black Grapes look better than white or light-coloured ones, in artificial light, but those of a light colour make a pleasant contrast, and, when the bunches are large, and not too much hid among the leaves, many people like them as well as the dark varieties. I am familiar with the table-decorations at one place, where, for three months in the year, there are seldom fewer than thirty at dinner. The table is of considerable width, and admits of large plants being used for its ornamentation. Sometimes a large Croton, Palm, or plant of a kindred nature, is placed in the centre, with a pot Vine at each side, and a smaller plant at the further side of them. At other times, a well-furnished pot Vine is placed in the centre, and in whatever position the pot Vine is used it is always effective. Any pot Vine, which is grown in the ordinary way, that is by being trained and fruited against a trellis, may be made to answer well for dinner-table decoration. When the fruit is ripe, the cane and other shoots should be carefully untied from the trellis; four green painted stakes are then placed at equal distances around the pot; these stakes should be moderately strong, and about 3 feet high. After they are firmly fixed in the soil the cane is twisted round the outside of them and arranged so as to bring the last coil within a few inches of the top of the stake. The side shoots, especially those on which the bunches are, must be carefully tied in, leaving the bunches as much outside as possible; any of the shoots which are too long may be cut back close to the bunch, and when the shoots are too thick or close together, those bearing no fruit may be taken off altogether. In tying the shoots they should be arranged so that the leaves will cover all bare wood. The only inconvenience which those who grow their fruiting pot Vines in 14 and 16-inch pots will experience, in introducing them to the dinner-table, is the enormous size of the pot, which few vases will contain and which requires a large opening in the table for its accommodation. Nine and 10-inch pots are easily accommodated with a large-sized vase, and splendid Grapes can be obtained from Vines in pots of this size. For small tables, where only one or two plants are used, the Vines should be grown dwarf and in small pots. When the Vines have grown into fruiting-canes the first season they are rooted and potted into large pots as they require it. When the final shift has been given into a 10 or 12-inch pot, the young growth will probably be 4 feet high; the bottom is then knocked out of a 6-inch pot, and the cane is passed through it until the soil in the large pot is reached, when the 6-inch pot is firmly filled with the same kind of soil as that contained in the large pot. Roots are soon formed in the soil in the small pot, and by autumn it is filled. All this time the growth is kept stopped at between 3 and 4 feet in length. Under this treatment a strong dwarf cane is formed with two sets of roots which, when started into growth the following season, is most productive. The cane is staked straight up at first, with several cross supports, to which the shoots as they grow are tied. Only these bearing branches are left on, and they are stopped at one joint beyond the bunch, which forms the Vine into a handsome, well-formed, compact bush, well furnished with bunches, the lowermost ones hanging over the edge of the pot. When the fruit is ripe, the plants may be kept in a cool place—a fruit room answers the purpose—until wanted for table decoration, when the whole of the roots are cut underneath the 6-inch pot, which leaves the plant ready for placing in a small vase in which the pot is easily accommodated. The foliage droops for a day or two after being severed from the large pot; and, in order to have the leaves in fresh condition when used for decoration, the separation should take place a day or two before the Vine is required. Sometimes the small pot is not put on until the Vine is being started for fruiting; but it never becomes so full of roots when this delay occurs. All kinds of pot Vines for table decoration should be kept thoroughly clean from insects, especially red spider. Those varieties which assume rich autumnal tints in the leaves are extremely effective, and resemble some fine foliage plant. Barbarossa is one of the most beautifully marked; but, unfortunately, it does not behave well under pot treatment; one or two specimens of it are, however, always worth a trial.

Notts.

NEW PLANTS, &c.

Cereus Landbecki var. Phillipii.—In a recent number of the "Gartenflora," t. 832, is a figure of this variety, which is a strong-growing plant, belonging to the columnar group. The seven-angled glaucous stems are 2 to 3 inches in diameter, and formidably armed with stellate clusters of long dark brown spines. The flowers are 6 or 8 inches in length, tubular below; the segments spreading trumpet-wise at the mouth. The outer row of segments are of a lively rose colour, the inner row being pure white. It is an attractive and easily grown plant, well worth culture.

Campelia mexicana.—This pretty little Commelynaceous plant is figured in a recent number of Regel's "Gartenflora," pl. 833. The fleshy decumbent stem is as thick as a swan's quill, rooting at the nodes, and clothed at the apex with smooth lance-shaped leaves, about a span long. The flowers are blue or bluish-violet, produced in clusters at the ends of smooth peduncles, about as long as the leaves. The small flowers are rendered attractive by having hairy stamens, as have most other plants in this family.

Top-shaped Bell-flower (Campanula turbinata).—A good coloured figure of this well-known and attractive plant is given at pl. 831 of Regel's "Gartenflora." This lovely blue-flowered species and its milk-white variety are now blooming freely in the herbaceous ground at Kew, and also in Messrs. E. G. Henderson's nursery, St. John's Wood.

Dietes Huttoni.—This is a Cape Irid, with broad grassy leaves, and erect scapes of golden-yellow flowers, streaked with brown, and was sent to the Kew collection by Mr. Hutton, from the eastern province of Cape Colony, and it bloomed in March of the present year. The plant in appearance and structure is so nearly related to the genus Iris that it seems a pity it was not figured and described as such. It appears to be nearly related to Dietes bicolor, of Sweet, which is the same as Iris bicolor, figured by Lindley in the "Botanical Register," t. 1,404. The plant varies from 18 inches to 2 feet in height, and well deserves culture, although not nearly so showy as many of the common varieties of Iris germanica. "Botanical Magazine," t. 6,174.

Cypripedium Argus.—This Lady's-slipper has solitary flowers, the drooping petals of which are conspicuously decorated with numerous eye-like spots. The leaves are light green, with darker markings. Dr. Hooker remarks that C. Argus is no doubt much the handsomest of the section to which it belongs, and was discovered by Mr. Wallis, Messrs. Veitch & Sons' collector, in the island of Luzon, one of the Philippines, and it first flowered in Messrs. Veitch's collection in 1874. As a garden plant it is one of the most attractive of all the solitary-flowered kinds, and is by some thought to be a natural hybrid between C. menustum and C. barbatum. "Botanical Magazine," t. 6,175.

Crocus minimus.—This is a pretty little purple-flowered species, the yellow backs of the three outer segments being streaked with purple. The plant has previously been introduced to our gardens, but was lost until Mr. George Maw succeeded in bringing a few bulbs from Corsica some months ago. It is very frequent in that island, where it flowers in the valleys in January, and upon the mountains it blooms in March. The same plant also occurs in Sardinia, and is the smallest of all the species of this genus, closely resembling some of the varieties of C. versicolor, but it has been confounded with C. biflorus, one form of which has been figured under the name of C. minimus, in plate 2,994 of the "Botanical Magazine." A figure of the true species will be found in t. 6,176 of the same magazine.

Eranthemum hypocrateriforme.—A very showy Acanthaceous plant, a native of West Tropical Africa, extending along the west coast from Accra to Sierra Leone. Seeds were sent to Kew from Sierra Leone in 1870, by the Rev. Mr. Bockstadt; and the plants flowered for the first time in May of the present year. It assumes the shape of a small smooth shrub, with opposite ovate leaves, and terminal clusters of orange-scarlet flowers, the buds and backs of the flowers being of a clear golden-yellow colour. It strikes freely from cuttings, and succeeds well in a warm greenhouse. It is well worth growing for greenhouse or conservatory decoration, and, like its allies, requires pinching to keep it bushy. "Botanical Magazine," t. 6,181.

THE FLOWER GARDEN.

FUCHSIAS ON GRASS.

Few plants are naturally of a more beautiful habit of growth than the Fuchsia. In fact, after all the labour we can bestow on specimens trained into standards or pyramids, they are not to be compared with plants left to Nature's training. We have here, on the open lawn, some old plants of F. Riccartoni, which many years ago were planted in old hollow tree stems, cut into about 2 feet lengths. These were sunk into the turf about 6 inches, and filled with soil, of which the Fuchsias soon took entire possession and rooted through into the soil beneath, so that they are entirely independent of the watering pot, and only require to be cut down in winter. They are beautiful objects throughout the summer, and far into the autumn. Their annual growths are about 4 feet long, the outer branches drooping in a most graceful manner and almost touching the green turf. No amount of expensive care could increase the beauty of their appearance when their branches, heavily laden with blossom, are waved by the slightest breeze. Anyone planting large blocks should put in several plants of one variety, by which means a striking effect may be produced at once. The small-blossomed varieties of robust habit, such as Riccartoni and globosa, appear best adapted for this sort of decoration; but, in sheltered situations, the large flowering kinds would doubtless be most attractive. Venus de Medici and Rose of Castille are excellent varieties for contrasting with the dark varieties. Anyone giving this system a trial would soon give up plunging specimens in pots, as the effect is far better, and the cost no more than that of growing any hardy border plant.

James Groom.

GARDEN VEGETATION FOR JULY.

In this district the weather during the month of July has, upon the whole, been pleasant. Some days have been very warm, but, for the most part, the temperature has been cool, easterly winds having prevailed. Some acceptable showers fell at intervals, but there has been no long continuance of heavy rains, such as have been experienced in other districts of the country. The six lowest thermometer readings were on the mornings of the 13th, 14th, 16th, 26th, 28th, and 29th, when 40°, 39°, 35°, 38°, 41°, and 40° were respectively shown. The six highest morning readings were on the 2nd, 3rd, 6th, 19th, 20th, and 21st, when 53°, 53°, 53°, 55°, 55°, and 56° were indicated. Vegetation of every description is now very luxuriant, but the dry state of the weather is causing many leaves to discolour and fall off. Portugal Laurels were white with blossom on the 10th; but, owing to the dry weather at the time, their flowering period was of short duration. The Spiræa ariæfolia was at its best about the 15th, Deutzia scabra about the 18th, and Philadelphus Gordonianus about the 20th. The blossom on the Lime trees was in perfection about the 22nd. From that time to the end of the month the honey was constantly dropping from their flowers, often damaging to a serious extent, particularly when wind prevailed, the bonnets, parasols, and dresses of ladies, who were far from suspecting the real cause. The common Chestnuts (Castanea vesca) were white with their feathery flowers about the 25th, and have every appearance of yielding a large crop of fruit. Walnut trees, although long past flowering, are now covered with fruit, as also are the scarlet, common, and yellow Horse Chestnut. In my report on garden vegetation for May, I stated that the so-called Scotch Laburnum (Cytisus Laburnum var. alpinus) had shown few or no flowers during spring, while the variety known as the English Laburnum had flowered profusely. At the present time, it is interesting to observe the top leaves of all the trees of the Scotch variety perfectly yellow, and, when the sun is shining on them, they look as if they were in full bloom. The leaves are evidently ripening early, having had no flowers or seeds to mature, which may account for the beautiful golden appearance of the foliage at the present time.

Forest trees, of almost every description, are this year producing seeds freely, and there is every appearance of an early ripening. No flowers are showing on any of the Tulip trees here, nor is fruit observed on any of the Mulberries. These, like many other exotic trees and shrubs, often require the aid of two consecutive hot summers, one to ripen the wood to enable it to produce flowers, and another to ripen the fruit, provided flower buds are previously formed. On the 1st of August, 207 species and varieties, exclusive of duplicates, were counted in bloom on the rock garden, the most conspicuous of the herbaceous plants at the present time being Gentiana gelida, Thymus alpinus, Campanula turbinata (blue), and Dickson's white C. turbinata, Silene Schafta, Sedum ibericum, and S. kamtschaticum, Santolina Chamæcyparissus, Fragaria lucida, Disa grandiflora, Spiræa palmata, Cyananthus lobatus, Dianthus dentosus, Teucrium pyrenaicum, Linaria alpina, Lithospermum fruticosum, Crucianella stylosa rubra, Lilium auratum, Bellis rotundifolia cœrulea, Pterocephalus Parnassii, and many Ericaceous plants, particularly the Dabœcia polifolia, and its numerous varieties of purple, variegated, and white. The Orobanche rubra, parasitic on the roots of the White Thyme, is also conspicuous. A few tufts of this Orobanche were placed last autumn in a large mass of the Thymus Serpyllum album, and the plants are now flowering profusely on the roots of this plant. The ten plants of Yucca gloriosa noticed in my June report as showing flower-spikes in the rock garden have now bloomed. The spikes average 6 feet in height and 5 feet in circumference. Numerous plants of Podophyllum Emodi are now covered with fruit, each as large as a duck's egg, and of a rich crimson colour. In consequence of the heat and moisture which has prevailed, many of the dwarf, shrubby, and herbaceous plants, are now producing flowers for a second time, such as Rhododendron ferrugineum album, Menziesia cœrulea, and M. empetriformis, Saxifraga purpurascens, Rosa pyrenaica, Trifolium uniflorum, Gentiana verna, Veronica Guthriana, double red Hepatica, also several species of Primula, particularly P. scotica. P. farinosa, P. annularis, P. nivalis, P. cortusoides, P. involucrata, P. minima, &c. Subjoined is a list of the better class of plants as they came into bloom during the past month, chiefly in the rock garden:

Plants in Bloom in July, 1875.

1. Calliprora flava
2. Hypericum Burserii
Teucrium pyrenaicum
3. Anthemis Aizoon
Cyananthus lobatus
Dryas octopetala, minima
Erica cinerea bicolor
Erica cinerea pallida
Machæranthera bicolor
Santolina Chamæcyparissus
4. Acæna microphylla
Campanula Dicksoni
Campanula lanata
Gypsophila dubia
Sedum sempervivoides
5. Campanula nitida
Dianthus ramosus
Echium rubrum
Saxifraga cochlearis vera
Sullivantia ohionis (?)
6. Campanula carpatica bicolor
Campanula gracilis
Lychnis japonica
Sedum retoridum
Spiræa palmata
7. Campanula Hendersonii
Sisyrinchium cœlestinum
Vitadenia trilobata
8. Oxalis bonariensis
Saxifraga Hirculus
Sedum multiceps
9. Epipactis palustris
Lilium pulchellum
10. Arum tenuifolium
Linaria hepaticæfolia
Polygonum vaccinifolium
Thymus Acinos
11. Erica tetralix Lawsoniana
Petrocallis pyrenaica
12. Micromeria Piperella
Teucrium aureum
13. Salvia taraxacifolia
14. Statice trinervis
15. Arenaria laricifolia
Erica Watsonii
Scolymus grandiflorus
Statice globularis
16. Gypsophylla arenaria
Illecebrum verticillatum
17. Campanula Rainerii
Convolvulus sabateus
18. Teucrium corsicanum
20. Erica ramulosa
Teucrium canum
21. Bellium minutum
Erica cinerea atropurpurea
Veronica salicifolia
22. Acæna pulchella
23. Erica ciliaris
Gentiana asclepiadea alba
Orobanche rubra (parasitic on the roots of Thymus Serphyllum album)
24. Campanula floribunda
25. Campanula Hostii albiflora
26. Micromeria Douglasii
Yucca angustifolia
Campanula isophylla alba
27. Hypericum Coris
28. Convolvulus sericeus
Cypella Herbertii
Sedum cyaneum
29. Funkia cœrulea alba
30. Symphyandra pendula
31. Scabiosa Gramuntia

Royal Botanic Gardens, Edinburgh. James M'Nab.

AUTUMN-SOWN HARDY ANNUALS.

Few think of sowing hardy annuals at any other season than in spring, and yet spring is not the time to sow, if one wishes really to see what they are, and what fine effects, if rightly treated, they are capable of producing. No; towards the end of the present or commencement of the succeeding month is the right time. With a view to saying a few words on the subject at a later date, we ("Irish Farmers' Gazette") some few weeks since, took occasion to bring under the notice of our readers the fine and effective beds of Nemophila, Saponaria, &c., from seasonably sown seed in the People's Garden, Phœnix Park, and also at Glasnevin. Plants of Œnothera Lindleyana in the latter, from autumn-sown seed, were, too, marvels of floriferous profusion. One of the strongest objections to the "bedding out" system of flower gardening is the nakedness of the beds during the long period which intervenes between the time they are cleared of their summer occupants and that when they are again replenished the following season. In large establishments, where there are ample means and appliances besides, this is, or may be, got over by means of a well-organised system of shrub bedding; but how exceptionally few are the places where this system is at all in practice, and fewer still where it is effectively carried out. Well, for a very small outlay, with the aid of autumn-sown annuals, few, but select, the naked beds may be clothed with beauty. Then, too, in the matter of the spring flower garden, to make it gay with the materials ordinarily in use—flowering bulbs and herbaceous plants—the quantity required of both to produce any considerable effect must be large, and the expenditure consequently large also. The amount of time and labour which they require is also very considerable. Few, only familiar with choice annuals, as seen in the ordinary spring-sown scraps and patches, can even dream of the beauty of beds such as Bartonia, Leptosiphon, Limnanthes, Nemophila, Saponaria, Œnothera Lindleyana, and others grown from autumn-sown seed. Instead, then, of waiting till March or April next, sow annuals about the last week in August or the first week in September, either at once in the beds where they are to flower, or, better still, in seed-beds from which they may be transferred to their flowering quarters before frost sets in. In respect of room and soil also, annuals are rarely afforded fair play. When sown in autumn and well treated in these respects they show that no flowers we possess are more precious.

Verbena venosa in Wet Seasons.—This is a most useful plant, as it grows and flowers abundantly in almost any kind of soil or situation. It looks all the brighter for drenching rains, and lasts very late in the season. When all the ordinary varieties of Verbenas fail this one is sure to give satisfaction. It is easily kept through the winter, and if its fleshy roots are stored thickly in boxes any number of plants may be propagated in spring from the young shoots that are abundantly thrown out. When geometrical gardening is largely carried out the rich purple of this plant is most effective. It should be planted rather thickly, and pegged down until the ground is covered, when it will continue to flower until the last of the summer flowers are removed or destroyed by the frost.—James Groom, *Henham Hall.*

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Yucca gloriosa in Flower in Scotland.—There is now flowering in Mr. Johnstone's gardens at Alva a fine specimen of this Yucca. Its height is upwards of 9 feet, and it has more than 400 flowers on it, all of which are not yet expanded. I may state that the plant has never been protected from the weather. It stands in a flower border in the kitchen garden.—W. Laurie.

Ornamental Grasses.—Wherever cut flowers are in demand for room decoration or bouquet-making, these Grasses, sparingly used, are very effective. Agrostis nebulosa, Eragrostis elegans, and Lagurus ovatus are amongst the best of the small-growing kinds. Sow thinly in the open ground in April, and transplant or thin out to 5 or 6 inches apart. The flowers may easily be dried for winter use.—E. Hobday.

Double Tom Thumb Pelargonium.—This, which is also sometimes callede Madame Rose Charmeaux, I find one of the most pleasing of the double Pelargoniums. It is most probably a sport from our great garden favourite Tom Thumb, and resembles it exactly in leaf and habit. In many gardens where Tom is discarded his double descendant will probably be welcome to a place.—T. V.

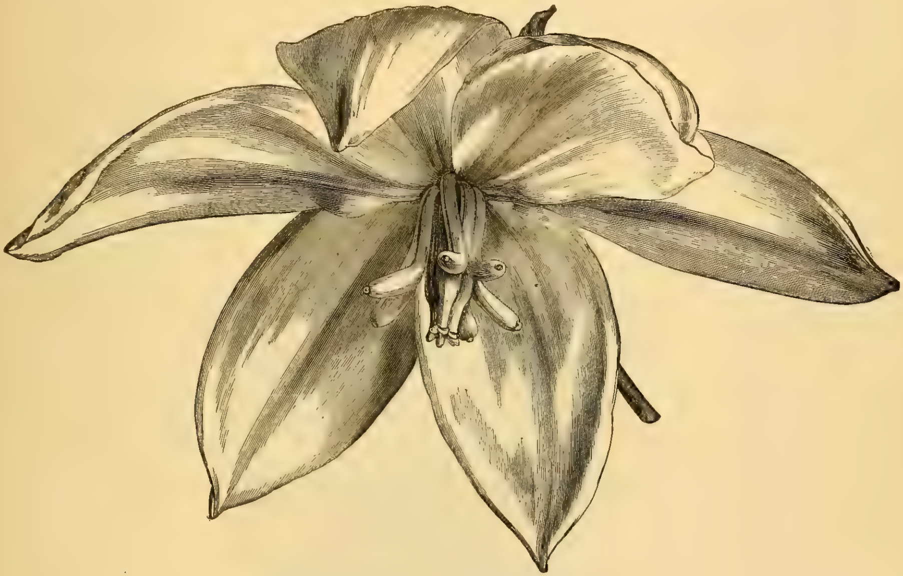
A New Grass.—In the "Chronique" of the Acclimatation Society it is stated that the Society has received a quantity of seeds of Reana luxurians, a Grass from Guatemala, said to be of value as a forage plant. According to M. Durieu de Maisonneuve, a single tuft will supply an ox with food for a day. In its native country, it is a perennial plant, forming enormous tufts. The leaves resemble those of Indian Corn, but are much broader.

Double Stock Seed.—Much has been written upon the saving of Stock seed. Three years ago I first had Mauve Queen, and, owing to neglect, I allowed the seed to stand ungathered through the winter; in spring, finding a few pods left unaffected by the frosts, I gathered them, and sowed them at the usual time in March. I have since adopted this plan, and my difficulty has been to get single flowers, quite nine-tenths being double.—W. T. Dix, *Cheltenham.*

Propagating Sempervivum tabulæforme.—It is quite a mistake to suppose that this plant "does not multiply freely" (see p. 81). It is very plentiful in some places. I began with a single plant one August and had plants and to spare by bedding time. Get an old plant, strip off its leaves from the base up—each with a little piece of heel attached—and peg them down by the middle as thick as they will lie in a shallow pan of light sharp soil, leaving the ends of the leaves sticking up. In a short time every leaf will produce plants at the heel, and they soon get large. Keep the leaves rather dry than otherwise.—J. S.

THE YUCCAS.

The present season seems to be an unusually favourable one for developing the beauties of this noble genus of evergreen shrubs, for many species are flowering most profusely, and are just now in the height of their glory. No other genus of hardy plants constitutes so distinct a feature in the garden as some of the stately Yuccas—indeed, there is absolutely no adequate substitute for them. Notwithstanding this quality, their hardiness, and their special suitability for certain purposes and situations, they are still comparatively rare in gardens. In early times they appear not to have been appreciated, and, consequently, nurserymen neglected to propagate them; and, as they are rather slow growers, the prices of good specimens have increased of late years, since tastes have altered and the demand for them has been greater; but the prices are certainly not beyond their value for ornamental purposes. Y. gloriosa was introduced nearly 300 years ago, and Y. aloifolia about a century later; but they appear to have been regarded as curiosities, and deserving of a place in the garden on that account only. Speaking of Y. gloriosa in 1635, old Gerarde says—"This some yeares puts forth a prety stiffe round stalke, some 3 cubits high, divided into divers unequall branches, carrying many prety large flowers, shaped somewhat like those of a Fritillaria, white inside, and warm reddish colour from the stalke to the middelst, so that it is a floure of no grete beauty." Miller, too, writing in 1731, had scant respect for them, and another writer cavils at the use of the specific name gloriosa. But they were cultivated about the latter date in James Sherrard's fine garden at Eltham, in Kent, and Dillenius figures two, G. aloifolia and draconis, in his splendid work "Hortus Elthamensis." Subsequently, at various periods, additional species and varieties were figured in the "Botanical Magazine," "Botanical Register," and other works without exciting any enthusiasm. The fine examples now in flower in the public gardens of Regent's Park, and at Kew, especially the young plants near the Victoria-house at the latter place, will give some idea of their magnificence when they have attained their full size, which is from 10 to 20 feet high. Such specimens may be seen in a few private establishments, but, as already observed, Yuccas are not so generally planted as they deserve to be.

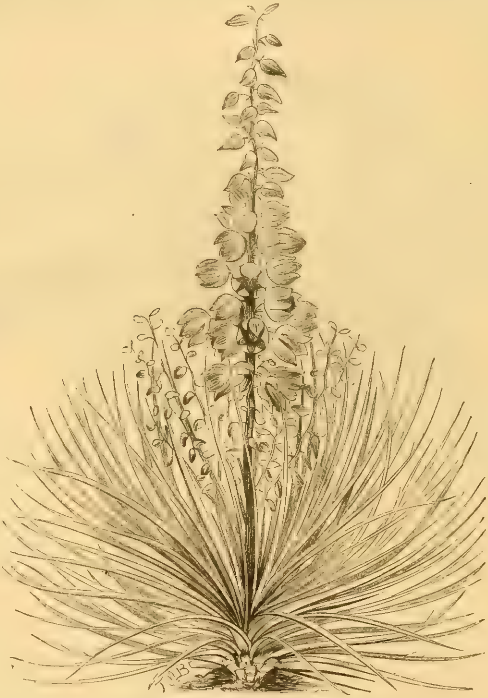


Flower of Yucca flexilis ("Revue Horticole"). See p. 134.

Nearly all the hardy species inhabit the shifting sands of the seashore of North-east America, from Virginia southward to Florida, and, therefore, they are admirably adapted for planting in similar situations in the United Kingdom; but they will flourish in any thoroughly-drained, free soil, open sunny places suiting them best. They grow rapidly and flower freely in the London gravel, and we have also seen them doing well on various sand formations, and on the chalk; but they thrive best of all on a deep alluvial soil. For the rock garden, for massing on knolls, for planting singly, for association with other plants with ornamental foliage, for planting in formal gardens, and for a variety of other purposes, Yuccas stand unrivalled. Although loving a deep free soil, especially where there is moisture below, they will succeed in a stiff loam; but, in a heavy soil, slightly-raised mounds should be selected, or they are liable to suffer in winter, and rarely flower. In very dry seasons they should be liberally watered; this promotes growth and the production of flowers; but Yuccas will bear a long drought without actual injury. This may be verified by any resident in London or other town where the small garden plots are drained completely dry, and when rain comes most of it runs off the ground, unless the precaution is taken of keeping the surface moved. Nevertheless, Yuccas should be extensively planted in towns, not only in small gardens but also in the public squares and parks, for water is not altogether so scarce in towns that a little cannot be spared for the garden, and the labour of applying it is far less, as a rule, in town than in the country. For defying dust, and general hardiness of constitution, few plants equal, and none surpass, the hardier species of this genus; but give them the sunny side of the house.

With regard to the propagation of Yuccas, although they rarely—with the exception of Y. filamentosa and that not very frequently—ripen seed in this country, little difficulty will be experienced, as most of them throw up numerous suckers, which may be taken off and planted out at almost any time of the year. Portions of the rhizome and the clustered lateral shoots will also strike very readily. Doubtless several of the species would often bring mature seed if artificially fertilised, for we are informed by American botanists that they depend upon the offices of a certain species of moth for fertilisation in their native habitats; and, in seasons when this moth happens to be scarce, the Yuccas ripen little or no seed. Artificial fertilisation is, however, not so easily effected in this genus as in many plants, because the pollen is shed before, or perhaps immediately after, the flowers expand. Judging from the figures of different species consulted for these notes, it would appear that neither botanists nor artists have often seen the perfect anther. If a flower-bud nearly ready to burst be cut open, perfect anthers will be seen. They are nearly triangular, or shaped like the head of an arrow, and attached by their centre to the top of the stout filaments. Before they open to allow the pollen to escape, they assume an almost horizontal position in relation to the axis of the flower. After shedding their pollen, the anthers quickly shrivel up, presenting the appearance depicted in most of the figures.

We have said that they will flourish in open elevated situations, but shelter from the north and east winds is necessary, especially on the eastern side of these islands. And, although the foliage will bear any wind, the caulescent species require support, or they easily blow over, particularly when planted singly. It is only in the colder and wet parts of the kingdom that even the hardier species will not succeed out of doors; and, as might be expected from the latitude of their native haunts, they thrive best in the south and west, though nearly all do well in the climate of London. Before leaving this part of our subject, we would again call attention to the fact that they naturally grow in the sands of the sea-shore, and will therefore flourish where few other things will live. They should also find a place in public winter gardens, aquariums, and similar places, always giving them a sunny, airy position.



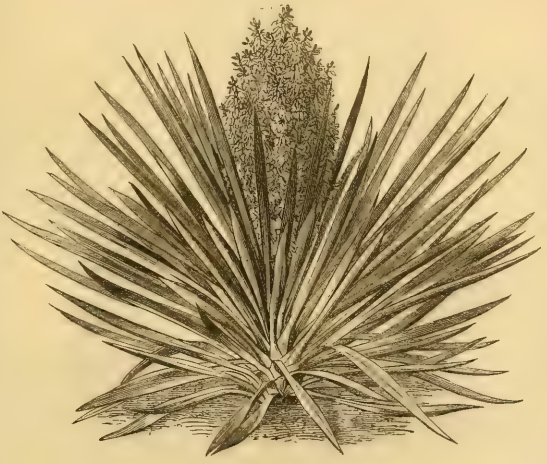
Yucca stricta ("Bot. Mag."). See p. 132

We need not enter at length into the botanical character of the genus and its affinities, but a few words on this subject will not be out of place here, as they will aid the reader in understanding the following descriptions. With the exception of a few necessary terms, technical language is eschewed, and only the more obvious distinctive characters are given. The general appearance of a Yucca is so different from most evergreen shrubs that we really need a suggestive popular name to designate the members of this genus and others of similar habit, as Cordyline, Astelia, Phormium, &c. But it is difficult to find one that is not open to some grave objection, and, therefore, we will not venture to propose one. Suffice it here to say that this character of foliage is very rare among evergreens or dicotyledons—Dracophyllum in Epacrideæ, and Eryngium in Umbelliferæ being notable exceptions. On the other hand, it is a characteristic of several groups of Endogens, including one or two tribes of the Liliaceæ, to which family the Yuccas belong. A glance at the accompanying woodcuts will give a better idea of the foliage than a long paragraph. The leaves are never absolutely fleshy, as in the allied genus Aloe, which, moreover, has small cylindrical flowers in dense spikes or clusters. In Yuccas the flower is composed of six petals in two series, those of the outer series being rather narrower, and usually more or less tinged with green. When fully expanded the flower is somewhat bell-shaped or hemispherical, but the petals soon close again, and then the flower is nearly spherical or oblong. Within the flower are six curious club-shaped stamens, bearing relatively small anthers seated on their tips; and, occupying the centre, is the three-celled, many-ovuled ovary, or young seed vessel. This last character is easily seen and worth noting, because in the Agaves — plants of similar habit, which, with some other genera, form a parallel tribe of the Amaryllis or Narcissus family—the ovary, or future seed-vessel, is beneath, not within, the flower. The most readily-seized characters for distinguishing the species are furnished by the leaves, and particularly by the seed-vessel, but, as the latter is rarely seen in this country, we may neglect it altogether, and rely upon the differences in the leaves and such other characters as are easily seen and understood. There are great differences, it is true, in the size and colouring of the flowers, shape of the petals, &c., of extreme forms, but there is every intermediate gradation, hence, although valuable for pictorial representations, these characters are of little use in written descriptions. There are three principal types of foliage, each represented by a number of species. In one set the leaves are quite entire on the margin; in another they are more or less evidently toothed or saw-edged; whilst those of the third group have the margin split up into thread-like fragments. Each of these groups is represented by a number of almost stemless species, and others forming a distinct trunk. The genus Yucca is probably confined in its natural distribution to North America, from about 35° N. lat., on both coasts, through Mexico to the northern part of South America, and possibly one or two species are indigenous to some of the West Indian Islands. But we have no trustworthy evidence that any of them are really indigenous to Japan and China, though it may be true, as reported, that some of them have been brought to Europe from those countries. The name is from Hijucca, or Jucca, a name said to be applied by the Indians to one of the species of this genus, and by others said to be one of the appellations of the Cassava. The roots were once stated to furnish the food called Cassava—a statement now known to be erroneous; but whether the name Yucca has been misapplied, we know not. Before proceeding to a consideration of the hardy forms, we should observe that many of them are still very rare in this country, whilst others are not yet, to our knowledge, in cultivation. The term hardy is here employed in its widest sense, and includes those species which will only endure the winters of the most favourable parts of the kingdom. Notes, relative to hardiness, are given under each species. For many of the details of the following descriptions, I am indebted to Mr. J. G. Baker, who will shortly monograph the genus on a scientific basis.

Enumeration of Species and Varieties.

Division I. Serrato-marginatæ. — Species in which the margin of the mature leaf is more or less distinctly toothed or saw-edged.

1. Y. aloifolia, of Linnæus, is very commonly cultivated in this country, having been introduced as early as 1696; but it is usually treated as a greenhouse plant, although Chapman, in his "Flora of the Southern States," gives the same habitat for this as for Y. gloriosa, namely "drifting sands along the coast from Florida to North Carolina." Possibly it may not be quite as hardy as the species just mentioned, but there can be no doubt of its hardiness in the south and west. It extends to Mexico and Jamaica; and, therefore, it is very probable that plants introduced from the warmer parts of its geographical area are tender in this country, whilst those from its northern limits in the United Sates would prove hardy. In North America, it is reported to form a stem from 4 to 8 feet high; in the West Indies, from 8 to 12 feet high; and, under cultivation in this country, it grows even higher; but it seldom flowers with us. Hence the stem remains unbranched, and exceeds its normal height. The leaves are very numerous and rigid, almost horizontal, or slightly ascending, dark green, with a slight glaucous bloom, when fully developed 18 to 24 inches long by 1 to $1\frac{1}{4}$ inch broad, half way up, and narrowed to about $\frac{3}{4}$ inch above the dilated base, and gradually upwards into a rigid point. The upper part not plaited; margin horny, rolled in on the lower part, and furnished with fine teeth; flowers, white or lurid red. The ordinary variety is figured in the "Botanical Magazine" and in the "Hortus Elthamensis;" but there are several others in cultivation, including some handsome variegated ones. Y. quadricolor and versicolor are beautifully variegated with marginal stripes of green, yellow, and red. The form called Y. Draconis in gardens, which Mr. Baker referred to this species in his enumeration of the species in the "Gardeners' Chronicle" for 1870, has since been figured in the "Refugium Botanicum," under the name of Y. guatemalensis. This is doubtless a tenderer plant than the true aloifolia; and it differs considerably from the true Draconis of the "Hortus Elthamensis, which does not appear to be in cultivation now. For ornamental purposes, for the sake of the foliage alone, Y. aloifolia and its varieties are invaluable; and, though not so graceful as Cordyline australis, they are hardier, and will bear the wind better. Where the climate is too severe for it to bear the winter, or where it is feared to turn out large plants of it, Y. aloifolia should be used for summer embellishments only out of doors.



Yucca Treculeana.

2. Y. Treculeana, of Carrière, was introduced from Texas in 1850, and is reported to be hardy, and to have flowered in the open air at Paris, and in other places in the north of France; but it is still very rare in England. It forms a very stout stem, and the fully developed leaves are from 3 to $4\frac{1}{2}$ feet long by 2 to $2\frac{1}{2}$ inches broad, dark green on both sides, with a hard, sharp point, and very fine regular teeth. The inflorescence of this species is an exceedingly dense, much-branched panicle, not much overtopping the nearly erect upper leaves. We have no information concerning the height this species grows in its native country. A warm sheltered situation should be selected for it. In catalogues Y. concava is quoted as a synonym.

3. Y. rupicola, of Scheele, is supposed by Mr. Baker to be the same as Y. lutescens of French gardens. It resembles Y. aloifolia, but it has narrower and thicker leaves, with a broader horny margin, and more distinct teeth. It is described as forming a stem from 4 to 7 feet high; but M. Carrière says lutescens is stemless. Leaves, pale green, with a sharp, often twisted point. Reported to be a native of Texas, and should, therefore, be treated similarly to the last.

4. Y. Whipplei, of Torrey, is a Californian species of this division, which will probably prove hardy, in the warmer parts, at least, of the kingdom. It is described as having a stem from 1 to 2 feet high, and very thick leaves, about $\frac{3}{4}$ of an inch broad and 18 inches long.

There are several other caulescent and stemless forms of this group, but they are imperfectly known, or too tender for our climate.

Division II. Filamento-marginatæ. — Species in which the margin of the leaf always splits up into filamentous threads.

Section I. (Acaulescentes).—All the generally known species of this division belong to this section, characterised by having no distinct stem, the leaves being spread out in the form of a rosette close to the ground.

5. Y. filamentosa, of Linnæus, is the species of this division usually seen in gardens. It was introduced in 1675, and is, perhaps, the hardiest of the genus, though in humid situations it is sometimes injured, when Y. gloriosa is unscathed. At all events, its northern limit is considerably beyond the others, as it reaches Virginia. The accompanying figure will give a better idea than words of the habit of this species, the long, slender shaft of the infloresence being characteristic of the group. Leaves, from thirty to fifty, tough and pliable, with abundant marginal grey threads, apple-green or slightly glaucous, from 15 to 24 inches long, by $1\frac{1}{2}$ to 2 inches broad at the middle, outer ones spreading, central ones erect or only slightly recurved, point not pungent; panicle, 4 to 6 feet high; scape tinged with red; flowers, nearly pure white, or more or less tinged; petals, rather long and narrow. In a well-drained soil this species flowers almost every season, and its slender, graceful inflorescence and showy flowers render it a very attractive and desirable plant. There is a handsome variety with variegated leaves, which is a great acquisition among variegated hardy plants of this class. In the "Refugium Botanicum" there is a figure of a large-flowered variety called grandiflora, which is perhaps the same as that known in gardens as maxima. It is larger in all its parts than the type, and the flowers are tinged with yellowish-green outside and red at the tips of the petals. The panicle attains a height of from 6 to 8 feet. There is also a variety called concava, with shorter, more rigid, concave leaves, and a dwarfer inflorescence. This species, and most of the stemless ones of this division, flower when quite young.

6. Y. flaccida, of Haworth.—A rather smaller species than the last, with thinner leaves, about 18 to 25 inches long, the young ones erect or slightly spreading, the old ones very thin in texture and abruptly decurved about the middle, almost as if broken off, giving the rosettes an untidy appearance, by which they may easily be distinguished from any of the forms of Y. filamentosa. The leaves, too, are very copiously furnished with grey threads, from 3 to 4 inches long; panicle, 3 to 4 feet high, with pubescent branches; flowers, rather smaller than in the preceding, greenish-yellow outside, nearly white within; petals irregularly toothed on the margin. This species is perfectly hardy, and flowers very freely, but it is scarcely so ornamental as the last. The date of its introduction is given as 1816 by Loudon, but its origin is uncertain. It is probably an extreme form of Y. filamentosa, for Chapman gives only four species in his "Flora of the Southern States," namely Y. filamentosa, gloriosa, aloifolia, and recurvifolia.

7. Y. puberula, of Haworth.—This is rather a smaller plant than either of the foregoing, and the branches of its panicles are densely clothed with short hairs; leaves of the centre decidedly recurved, and very sparsely furnished with marginal threads; flowers, broadly campanulate, of a deep cream colour. Mr. Wilson Saunders states that this species seems much exhausted after flowering, and the portion which flowers dies, generally leaving side shoots, which require two or more years before they have strength to produce flower-spikes. Stated to be a native of the Southern United States; date of introduction unknown. This species also is most likely included by Chapman under filamentosa, though probably a more careful examination of the native plants might lead to their being discriminated as distinct species.

8. **Y. stricta,** of Sims, "Botanical Magazine," t. 2,222.—This species has longer narrower leaves and a proportionately shorter stalk to the panicle, the lower part of which does not rise quite clear of the leaves. The marginal threads are very slender and few in number. The lower branches of the panicles are long, and bear as many as a dozen flowers, and the latter are comparatively large. Reported by Sims from Carolina, but the dried specimens in the Kew Herbarium are from Texas and near New Orleans. Introduced in 1817, and figured in 1821. Yucca stricta, of the "RevueHorticole," isdescribed as a short-stemmed plant which, at the surface of the soil, presents a spherical mass of leaves, which are very numerous, and measure some 16 or 17 inches in length, and about half-an-inch in breadth. They taper off to a point, are straight or sometimes a little bent, slightly canaliculated, and bear upon their edges whitish-grey filaments; the youngest leaves are somewhat shorter and broader than the others, and are glaucescent on the interior surface. The flower-spike is green, pubescent, and strong, attaining a height of 3 or 4 feet. The twin flowers, which are often solitary on weak stems, are at first greenish, then yellow, and subsequently nearly white. The external divisions are about 1½ inches long, and three-quarters of an inch wide; the interior ones are oval and somewhat larger. This plant, which commences to flower towards the end of June, sends out but few suckers. It seems to be intermediate between Y. flaccida and Y. filamentosa.

Yucca gloriosa in England (see p. 133).

9. **Y. glaucescens,** of Haworth.—I am in some doubt whether different writers have had the same plant in view, judging from the discrepancies in their several descriptions. The true plant appears to have been introduced in 1819. It is very near Y. filamentosa, having firmer narrower glaucous leaves, sparsely filiferous and sharp-pointed. Panicle, 3 to 4 feet high, with very downy branches. Mr. Baker thinks it may be only a variety of filamentosa. Mr. Robinson, in the "Sub-tropical Garden," describes it as a very free-flowering kind, with flowers of a greenish-yellow colour, tinged with red when in bud, which tends to give the whole inflorescence a peculiarly pleasing tone; and he adds that it is a very useful sort for groups, borders, isolation, or placing among low shrubs. Reported to be a native of North America, though probably of garden origin, as seedlings from Y. filamentosa are known to vary considerably,

10. **Y. angustifolia,** of Pursh.—This species has very narrow leaves, from a quarter to a third of an inch broad, and rarely so much as 18 inches long. They are of a pale glaucous green, very thick, and more rigid in texture than any others of this section, sharp-pointed, and furnished with numerous white marginal threads. It is the dwarfest of the group, rarely exceeding 2 feet in height, and the inflorescence is reduced to a simple raceme. Cultivated specimens sometimes attain larger dimensions, but it is rarely seen now. Y. angustifolia, of Carrière, belongs to the same set as Y. aloifolia, and is unknown to me, beyond the description. The true plant, it is recorded, was introduced in 1811, and there is a figure, though a very indifferent one, of it in the "Botanical Magazine." It is a native of New Mexico, and scarcely so hardy as Y. filamentosa and its varieties, in a heavy loam—the only soil I have seen it tried in.

11. **Y. paviflora,** of Torrey.—This is also a New Mexican species, so far as I am aware, not yet introduced. In foliage it resembles the last, except that the margins are rolled inwards and much duller in colour; the panicle is very slightly branched, and the flowers are very much smaller than in any other species of the genus, the petals not exceeding three-quarters of an inch long by an eighth of an inch broad. It is also very distinct in many other characters. From its native country it will probably thrive only in the milder parts of the kingdom.

Section II.—Caulescentes.

12. **Y. baccata,** of Torrey.—Mr. Linden, of Ghent, has recently introduced this curious species from New Mexico, and possessors of it should not trust it out of doors through the winter until it becomes more plentiful. It is described as having a short thick trunk; erect, sword-shaped, channelled, filamentose leaves, and very large flowers, the petals measuring 2½ to 3 inches long by about half an inch broad. The fruit is stated to be as large as a big Fig, with a sweet edible pulp.

Mr. Baker has published preliminary incomplete descriptions of several other forms of this section, formerly in the collection of Mr. Wilson Saunders, but I have not been able to glean any further information concerning their hardiness; and, as they are doubtless very rare in cultivation, it is scarcely worth while copying the description, especially as the flowers of all of them were unknown to him at the date of his paper. They bear the following names:—Y. periculosa, polyphylla, circinata, scabrifolia, and fragilifolia.

Division III. Integro-marginatæ.—Margin of the leaves quite entire, that is, neither toothed nor splitting off into threads.

Section I.—Acaulescentes.

13. **Y. orchioides,** of Carrière.—A very distinct species, the smallest of the genus not exceeding 18 inches in height. Leaves, about a dozen in a rosette, very thin, and reed-like in texture, from 9 to 12 inches long by an inch broad, the broadest part pale green in colour, point not at all pungent, surface nearly flat throughout or slightly involute towards the top, margin marked with a faint brown line; inflorescence, unbranched, the stalk below the flowers deep red, clothed with a grey pubescence; flowers, broadly campanulate, with ovate petals about an inch long. The native country of this species is not given. It is figured and described in the "Revue Horticole," 1861, p. 369, and is still rare in this country.

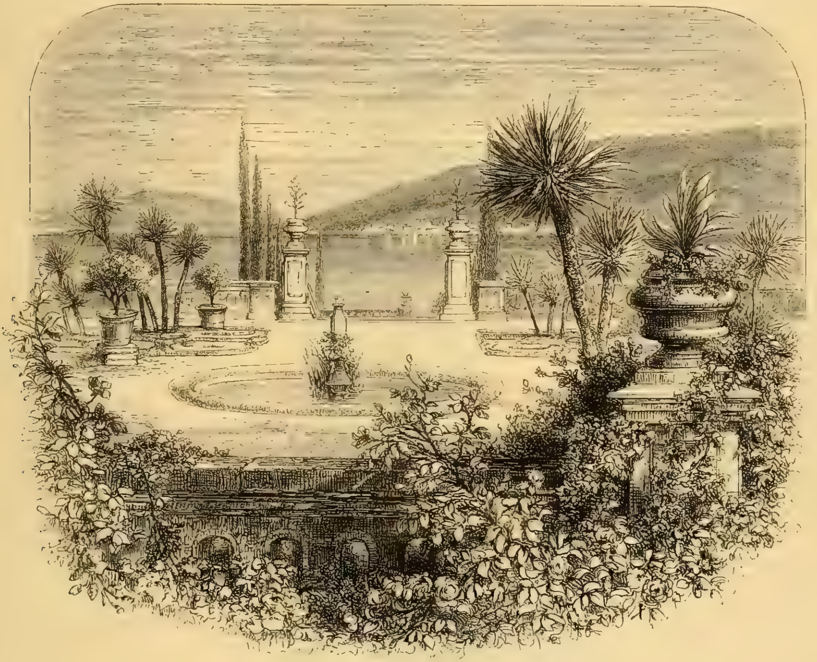
14. **Y. glauca,** of Sims, in the "Botanical Magazine," t. 2,662.—A very hardy form, whose native habitat is not given. Most likely it is of garden origin. It approaches very closely to some of the filamentose set, but it is almost or quite destitute of marginal threads. The original is described as having lanceolate glaucous, flexible leaves, and yellow flowers, with ovate spreading petals. Mr. Baker describes a plant, believed to be the same, as having from twenty-five to thirty leaves in a rosette, 15 to 18 inches long, and about 1½ inches broad in the middle. Panicle, very much branched, 3 to 4 feet high; flowers, somewhat saucer-shaped.

15. **Y. tortulata,** of Baker.—I only know this from Mr. Baker's

description. Its native country appears to be unknown. Leaves, about forty in a close rosette, 18 to 21 inches long, when fully developed, by 14 to 15 lines lines broad at the middle, narrowed to half that width just above the base; apple-green; always retaining a glaucous tinge; more or less twisted to one side; point, hard and sharp; lower side, distinctly rounded; margin, distinct and quite entire. Possibly the same as the Y. undulata of Martius.

16. Y. pruinosa, of Baker.—Another little known form. Leaves, seventy to eighty in a close rosette, 26 to 30 inches long when fully developed, nearly as stiff as in some of the forms of gloriosa; permanently clothed with a glaucous bloom, sharp pointed, flat, margin marked with a distinct brown line. The flowers of this and the last are not known to me.

17. Y. acuminata, of Sweet, "Flower Garden," 2, t. 195.—This forms a very short stem, and is in many respects very near gloriosa; but its flowers are less showy. Leaves, fifty to sixty in a dense rosette, 18 to 24 inches long, nearly 2 inches broad in the middle, narrowed gradually upwards to a hard brown point, deep green, slightly glaucous when young, the face more or less concave throughout the entire length, edge marked with a distinct brown line, ascending or spreading, not recurved. Panicle, 4 to 5 feet high, with several short ascending branches; flowers, cream-white, more or less tinged with dull purple. Mr. Saunders states that this is a slow-growing, shy-flowering, though quite hardy, plant in the neighbourhood of London. It is believed to be a native of the Southern United States, and was introduced early in the present century. Sweet figured it in 1838.



Old Specimens of Yucca aloifolia in Italy.

Section II.—Caulescentes.

18. Y. gloriosa, of Linnæus.—This is certainly the most majestic and the most beautiful of the genus, as it was the first introduced, having been in cultivation ever since 1596. It grows in drifting sands along the coast from Florida to North Carolina, where, according to Chapman, it forms a stem from 2 to 4 feet high; but, in favourable situations in this country, it is not uncommon to see the whole plant from 10 to 15 feet, or occasionally, I am informed, 20 feet high—that is, including the inflorescence, which often attains a length of 6 feet. This species flowers freely in sunny situations, after it has reached a certain age, but plants from suckers are usually some years before they flower. The trunk branches after flowering, and it is not unusual to see old specimens many times branched, forming very heavy heads, which should be supported. It is very variable, though, perhaps, not more so than the other species of the genus, but its varieties are better known. The ordinary form or type has upwards of 100 leaves in a dense tuft, 24 to 30 inches long, and 3 inches broad at the middle, in luxuriant specimens, narrowed gradually upwards to a brown sharp point, and downwards to $1\frac{1}{4}$ to $1\frac{1}{2}$ inches above the base, green or slightly glaucous when young, very rigid, even the outer older ones remaining erect; face, concave, with longitudinal folds; margin, entire, with a distinct brown line; panicle, 3 to 6 feet long, according to the vigour of the plant, not downy or hairy; flowers, large, among the handsomest of the genus, almost globular or goblet-shaped, when the petals are incurved; petals, oblong, narrowed into a point at the top, from $2\frac{1}{2}$ to 3 inches deep, the inner ones from 1 to $1\frac{1}{4}$ inches broad, the outer ones narrower, and distinctly banded, or more or less tinged with bright red down the back; or sometimes the flowers are almost a pure white, seedlings varying much in this respect. Several have been distinguished. Y. minor, of Carrière, sometimes called rubra and superba in gardens, is a very showy-flowered dwarf form, that flowers freely when small. Y. glaucescens, of the same writer, differs mainly from the type in its decidedly glaucous foliage. Y. superba, of Haworth, and the "Bot. Reg.," t. 1,690, has smaller more rigid leaves than the type, and a short dense panicle. Y. mollis, of Carrière has longer, less rigid leaves than the type. Finally, Y. recurvata, of Baker, has the outer leaves recurved, and, in other respects, being intermediate, between gloriosa and recurvifolia.

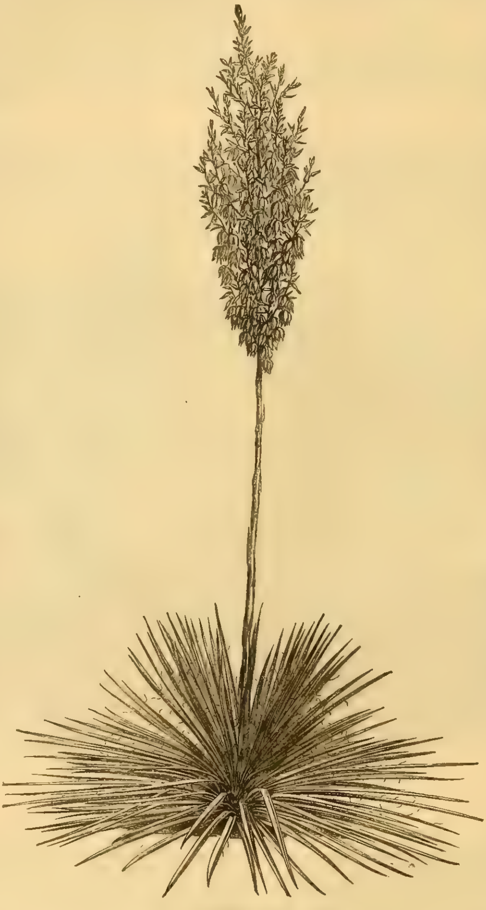
19. Y. recurvifolia, of Salisbury, in the "Paradisus Londinensis," t. 31.—This is, perhaps, better known in gardens under the name of pendula, of Siebold; but the above has priority over all others. It is also called recurva, reflexa, and japonica. The stem of this species does not grow so high as the last, but it is usually more branched; leaves, very numerous, from 2 to 3 feet long, bright apple-green, or faintly glaucous when young, not so thick in texture nor so sharp-pointed as in the last, but becoming distinctly recurved with age; panicle, 3 to 4 feet high; flowers, of a more cylindrical shape than those of gloriosa, exhibiting the same variety of colour. This highly ornamental species inhabits the sea-coast of Georgia, and was introduced in 1794. It is perfectly hardy, and, perhaps, the best of all for forming clumps on the lawn and general purposes, its reflexed leaves giving it a less stiff and formal appearance than its congeners. Mr. Saunders says this is not a very free-flowering species; but my experience of it, in favourable situations, is quite the reverse. Y. rufo-cinata is a variety in which the leaves are distinctly margined with a reddish-brown.

20. **Y. Ellacombei.** — This species or variety was named by Messrs. Osborne in honour of the Rev. H. N. Ellacombe, of Bitton Vicarage, whose collection of this genus is very rich. Its origin is obscure; but, as an ornamental species, it is highly spoken of by Mr. Saunders, who gives a figure of it in the "Refugium Botanicum." It is quite hardy, forming a short trunk, with rosettes of about forty or fifty leaves, which are from 2 to 2½ feet long, and 1½ to 1¾ inch broad at the middle, narrowed upwards into a brown sharp point somewhat thinner than those of gloriosa in texture, all spreading or ascending, permanently glaucous, the face more or less concave throughout, not plicate, edge marked with a distinct brown line; panicle, a yard long by half as broad; flowers, pure white, with the exception that the outer petals are tinged with red on the back.

21. **Y. flexilis**, of Carrière.—This kind is, so far as I am aware, not cultivated in this country, at least it is not included in any of the nursery catalogues I have before me. It is described as having a short trunk and bright green leaves, shining as if varnished, faintly glaucous when young, when fully developed 2 to 2½ feet long by about 1¼ inches broad at the middle, narrowed gradually to a sharp point, the outer ones gracefully reflexed, margin reddish-brown; flowers, pearl-white, 3 to 3½ inches long. This form probably originated in French gardens.

22. **Y. gigantea**, of Lemaire.—According to the description in the "Revue Horticole," this is the largest form of this series. It has leaves from 4 to 5 feet long and 3 inches broad in the middle, bright shining green, edge whitish; panicle, 2 feet long, copiously branched; flowers, cream-coloured; petals, 3½ inches long. It flowered in Verschaffelt's collection at Ghent, in 1859.

23. **Y. canaliculata**, of Hooker, "Botanical Magazine," t. 5,201.—A Mexican species, thriving only in warm, sheltered situations. Stem, 1 to 2 feet long below the rosette, 3 to 4 inches thick; leaves, forty to fifty, in a dense rosette, 20 to 24 inches long, 2 to 2½ inches broad at the middle, very strong and rigid in texture, with a very strong, sharp point, the face so deeply concave as to be almost boat-shaped, slightly toothed near the point, marked all through with a very distinct brown line, colour a slightly glaucous green, back moderately scabrous; panicle, 4 to 5 feet high; flowers, cream-white, 1½ inches deep. An exceedingly handsome and distinct species.


Yucca angustifolia (see p. 132).

24. **Y. ensifolia**, of gardens, figured in "Refugium Botanicum," Vol. IV., tab. 318.—This is probably a native of Mexico, and it is treated as a greenhouse plant by Mr. Saunders, though doubtless as hardy as the last. However, its hardiness has not been tested, and so long as it remains rare I should not recommend trying it out of doors through the winter, except in the very warmest localities in the south-west. The specimens known have a short trunk, very thick at the base; leaves, thirty to forty, spread over about a foot of the stem, narrow, lanceolate, 2 to 2½ feet long, 1¼ to 1½ inches broad at the middle, narrowed gradually upwards to a brown sharp point, and downwards to half-an-inch above the broad base, pale glaucous green, similar to those of gloriosa in texture, the face more or less concave throughout, the edge marked with a distinct brown line; panicle, 2 feet long; flowers, nearly globular in shape, cream-white, faintly tinged on the outside with red.

The foregoing is a very imperfect synopsis of the hardy cultivated Yuccas; very little having been added to our knowledge since Mr. Baker wrote in 1870; but as they become more generally cultivated it will be possible to get more together at one time for comparison and description. Several other names might have been added, but the plants are either not in this country at all or extremely rare, and we have no information as to their hardiness.

W. B. Hemsley, A.L.S.

A French Gardeners' Orphanage.—At the little village of Fresnes, on the Lyon railway, in France, stands the orphanage founded by M. Esnault-Pelterie, a lawyer, for the children of gardeners who have been left unprovided for. The organisation of this little establishment has been simple in the extreme. Standing within spacious gardens, the property of the benevolent founder, the institution affords accommodation to from fifteen to twenty-five children who are lodged, clothed, and instructed in the art of gardening by a gardener specially appointed for the purpose. Ten years ago, this good work was inaugurated; and, since then, the establishment has sent out a great many young men trained as gardeners, who have had little difficulty in obtaining situations as garden assistants. In order to mark their sense of M. Esnault-Pelterie's benevolence, the Central Society of Horticulture of France have recently sent him their gold medal, and to M. Simon, the gardener in charge, a silver one.

New Hybrid Herbaceous Spiræas.—Some Hybrid Spiræas of a very interesting character have been sent to us by Mr. Willison, of Whitby. S. palmata was the female plant, but all, or nearly all, of the progeny have pinnate leaves, differing much among themselves both in size and form. Out of about 100 plants flowering this year, which have bloomed earlier than the parent, the flowers are either white or pinkish. One of the white-flowered forms has the pips so much larger than usual, that Mr. Willison suggests it might be called grandiflora. The value of these seedlings as garden plants cannot yet be truly estimated, since their permanent character will scarcely be manifest, but the large-flowered one alluded to, and some of those with the flowers much suffused with pink, may be expected to prove pretty ornaments of our flower borders.—"Florist."

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Currants on Walls.—The fruit of these is not often molested by birds whilst they have bushes in the open ground to attack, but when these fail the wall fruit will be in danger, and should be netted at once. By this means a supply of Currants for dessert can be kept up much longer than it otherwise could be; they will hang for many weeks when grown against the walls of buildings or anywhere else under copings. When grown on north, east, or west walls they come in later than on more sunny aspects, and, if kept dry, will afford a long succession of useful fruit. Wasps, in some parts of the country, are very numerous this season, and should be guarded against; a ready and certain method of destroying them is dipping pieces of rag in gas tar, placing them in their holes at night, and setting fire to them, at the same time covering the hole up with earth, so as to prevent the fumes escaping; if this is done effectually, none that are inside will survive; but, as quantities of nests exist that are never found, means must be taken to trap those that molest ripe fruits. Plums, especially Greengages, are their particular favourites; so fond are they of this fruit that they will often attack the crop before it is fully ripe, and unless they are destroyed scarcely any will escape. The most effectual traps are ordinary hand-lights raised on bricks placed near the foot of the trees which they infest; put a few of the fruits which the wasps have partially eaten inside and near the top of the hand-lights, in which there should be an opening an inch or two in diameter, through which the wasps can get; nine wasps out of every ten that are attracted by the fruit-bait, instead of departing at the bottom, where they came in, will rise to the top of the glass and find their way out through the small aperture alluded to; but, to prevent their getting away another glass, similar in size and shape and quite tight, must be put on the top of the first; here they will be confined until they die. Wide-mouthed bottles, filled with sweetened beer or treacle and water, hung in the trees, will also catch great numbers of them, and may be employed in addition to the hand-light traps.

Yucca ensifolia (see p. 134).

Flower Garden.—Continue to go over the beds regularly, in order to remove dead flowers and discoloured leaves; this applies particularly to Pelargoniums, which, if not attended to in this manner, look shabby; peg down the shoots of any other plants that require that attention, so as to cover the ground evenly. In most places the surface was further from being covered at the commencement of the present month than it usually is at the end of June, and, as perfect regularity without any blanks is a most essential point in this system of gardening, everything should be done that tends to make the appearance of the summer flower garden as perfect as possible. If the weather becomes dry Dahlias and Hollyhocks should be supplied with manure-water; quick-growing, gross-feeding plants, such as these, can scarcely be overdone with stimulants of this kind, which may also be given to them strong. The drainings from the stable and cow-shed manure-heap, with about twice their volume of water, will not be too much. Asters, that are vigorous and coming into flower, and also Zinnias, will be much benefitted by similar applications. The cool, moist weather that we have had throughout the summer has been much against the progress of tender bedding plants, but it has had an opposite effect upon most hardy herbaceous subjects. Delphiniums, Phloxes, Campanulas, Potentillas, scarlet Lychnis, Chelones, and a host of other fine summer flowering subjects, have been beautiful. Delphiniums have thrown up successional blooming shoots that promise more than an ordinary amount of autumn flower, and will be much improved by the removal of all bloom-stems as they go out of flower where seed is not required. Gather the seeds of Sweet Williams, Wallflowers, Foxgloves, Snapdragons, and similar subjects, as they ripen, and put them in paper bags, labelled so that there may be no mistake at the time they are required for sowing.

Houses.—Vineries.—Where ripe Grapes are hanging wasps are here more destructive even than out of doors, doing serious damage in a very short time if they are not prevented. Many contrivances are resorted to to stop their ravages, such as putting the bunches in muslin or paper bags, but these, at best, are but half measures, for the wasps often eat their way through; and if the weather becomes very damp later on before the insects are got rid of, a few berries often become mouldy, and when the bunch is so deprived of air and of light, the whole very soon decays. In addition to this the operation of putting on the bags destroys the bloom. A much more effective plan is to keep the wasps out of the house altogether, which can be done by nailing hexagon netting over the moveable front and roof-lights, or ventilators, that are opened for the admission of air. This, with a little care in putting on, so as to leave the material loose enough, will effectually keep these pests at bay, without excluding the necessary air. The woolly nature of this netting prevents the wasps eating their way through it, as, with some fabrics, they will do, if they have found the fruit. Vines that have been allowed to start of their own accord in the spring by the sun's power will at once require the assistance of fire-heat where the means for its application exists, not only for maturing the fruit in time, but, for what is of equal importance, ripening the wood for another year. A little should be turned on when the weather is at all dull. Where fire-heat cannot be applied, not an hour should be lost in utilising sun-heat. Close the houses in the afternoon as soon as the thermometer falls to 80°. This will often cause the temperature to rise to 100°, which will, at this end of the day, do no harm, but much good. Give air early in the morning; a little by six o'clock will do much to prevent scalding in both fruit and leaves. Have sufficient moisture in the atmosphere to swell the berries out and to keep in check red spider. This applies to Grapes that require Hamburgh treatment. Where Muscats are grown in such a season as the present, it is impossible to get them into satisfactory condition without continuous fire-heat, at all events from this time forward until ripe.

Potatoes.—With amateurs, as with others engaged in gardening pursuits, the question of the greatest importance at the present time will be how to deal with the Potato crop. We frequently meet with those who, when disease attacks their crops, are more disposed to stand still and let things run their course than take measures to save even a portion of them, the reason assigned being that numerous attempts to check the disease in past years have utterly failed. This course might be defensible if we were sure of the weather, from this time, being dry, for it not unfrequently happens that the disease makes its appearance on the haulm and on a portion of the tubers, while the remaining, and often the greater part, is not affected. After the first attack, however, should the season continue wet, seven-eighths of the whole crop generally go bad; whereas, if all the early and second early kinds had at once been taken up on the first appearance of the disease, a large portion might have been saved. I have continually found it to be no easy matter to convince people that Potatoes will keep sound equally well if taken up before they are ripe as when allowed to remain in the ground until fully matured; yet such is the case, even if the tubers are so young that the skin will slip off them easily when touched; this I have proved by repeated trials extending over at least a score of years. If, on the first appearance of disease on the leaves, before it has extended to the bottom of the haulm and thence to the tubers, the latter are taken up, they will keep as sound through the winter as if no disease had been prevalent and as if left in the ground until fully ripe; but Potatoes thus early taken up are never quite so good in quality as when time is allowed for thorough maturation. I would strongly urge the advisability of at once taking up all early and second early kinds, putting any that have been at all diseased where they can be turned over, in order to pick out such as are affected, and have escaped notice at taking up time. If there be a continuance of wet weather, I should also advise that late varieties for seed be taken up at once; but for this purpose, when disease is prevalent, they must not be allowed to remain out of doors to green in the usual way, for, although they may not be effected when lifted, yet, if exposed in this manner, they will quickly suffer to a greater extent even than when they were in the ground, although they may be a considerable distance from any that are suffering from disease. This shows clearly the existence of spores in the air when the disease is rife. The removal of Potato crops earlier than usual will admit of a much larger breadth of ground being planted at once with Cabbages, Cottager's Kale, or other Winter Greens.

Yucca recurvifolia (see p. 133).

Spring Flowers.

Now is the time for preparing the various kinds of Pansies used in spring bedding, beginning by carefully going over the whole of the old stock, which probably had been used last spring and removed hurriedly from the quarters it then occupied to make room for summer bedding plants. If it has not already been done, lose no time in getting in plenty of cuttings; for, although it is late they will yet root, and be very useful in spring for filling any vacancies which are always very liable to occur during the winter months in the beds planted in autumn. If seeds of any kind have been collected, sow them at once; although they will not all come true to name, a fair percentage will do so, and by letting them remain in the seed beds all the winter they will flower early in spring. Then select such as are true, and they will supply cuttings such as cannot be taken from the beds in the early part of spring. These will be found very useful in the succeeding autumn. It generally occurs, particularly where spring gardening is extensively practised, that, when planting is completed, there is nothing left for stock; consequently it is very necessary to make every effort for the supply of this. I have always found, in my experience of spring gardening of this kind, that the stock requires much more attention and watchfulness at different seasons of the year than that of summer bedding plants, and, if once out of order, it is not a very easy task to right it by the time it is wanted. See that no seedling Daisies spring up amongst your stock, or you will experience much difficulty in detecting the true ones in autumn. Various kinds of Silenes should now be sown, not forgetting S. pendula compacta, which is a lovely variety. Sow also Limnanthes Douglasii and grandiflora, the former is the first to flower by one month, but grandiflora is the most showy. Lasthenia californica, Erysimum Perofskianum, Nemophila insignis, Saponaria calabrica and alba, Myosotis dissitiflora, and other kinds, should now be sown; and all other kinds of annuals required for spring flowering of which there are others omitted here, as I here only named such as I know to be quite hardy, and may be depended upon for a spring display. In planting Myosotis dissitiflora, I find it a good plan to partly use plants from cuttings, and partly from seed planted thickly. This prolongs the time of flowering greatly, the cuttings flowering first, and the seedlings succeeding. By sowing them now in beds, and pricking them out as soon as they are large enough to handle on ground prepared to receive them, they are strong plants by end of September, or by the time you have cleared away the summer bedding plants. And when you have done, lose no time in planting your spring flowering plants. The system of bi-annual planting, to which I here more particularly refer, requires great care, and much labour and attention. What I have written above, refers to late—March, April, and May—displays of spring flowers, and not very early spring flower gardening, which would require quite a different class of plants.—George Beech, *Castle Ashby*.

Flower Garden and Pleasure Ground.

As soon as cuttings of Pinks, Picotees, Double Wallflowers, &c., are well rooted they should be planted out where they are intended to remain, either in beds or in patches, as may be desired. It is always advisable to do this soon, so that the plants may become well established before winter sets in; but, previous to turning such plants out, the soil should be properly prepared for their reception. Pinks, Picotees, Cloves, and Carnations succeed best in a tolerably tenacious loamy soil, and, if the natural soil of the garden be deficient in this respect, it should have fresh material added to it; at the same time examine very carefully the fresh soil, and remove wireworms, should it contain any, which is very frequently the case, for they are the most deadly foe of this family of plants. When a good strain of Sweet Williams is obtained, this can generally be perpetuated by seed saved from the very best blooms, but it is at the same time advisable to perpetuate unusually fine varieties by cuttings, and if these were inserted under hand-glasses when the plants first came into flower, they will now be rooted, and may be planted out. All such plants may, if desired, be planted as single specimens on the herbaceous border, but they are much more effective when massed, or formed into beds. Where cuttings of choice Pansies are well-rooted they may also now be planted out. Such plants rejoice in a tolerably rich or well-manured soil, and a somewhat shady situation. The various kinds of Brompton and Queen Stocks may also be planted out now, and will succed in any tolerably good garden soil. When it is desirable to have Ten-week and intermediate sorts in flower early in spring, the present is a suitable time to sow the seeds, and a portion at least of the plants should be potted, when strong enough, and kept in cold pits or frames during winter. Look over beds of seedling Hollyhocks as soon as they are in flower; pull up all worthless varieties, and increase promising seedlings, as well as named kinds by cuttings, or eyes, to the extent they are likely to be required. The Phlox Drummondii is one of the most charming of annual flowers when a good strain is obtained, and to prevent this from deteriorating, it is necessary to look carefully over the beds or plantations of such plants, and weed out inferior varieties. This practice should be pursued with all annual and biennial flowers, such as the various Dianthuses, Sweet Williams, Mignonette, Wallflowers, Zinnias, &c. —indeed, seed should never be gathered promiscuously from such plants, or the strain will be sure to deteriorate. In even the most extensive establishments only a limited quantity of seed of such plants will be required, and it is always advisable to select and mark the very best flowers for the purpose of furnishing seed for the following season's supply. Continue to increase, by cuttings, the necessary stock of bedding Pelargoniums for next year's embellishment; but, at the same time, avoid by all means despoiling the flower beds for this purpose, which it will not be necessary to do if the surplus stock was planted, as directed, in the reserve garden for this purpose. Now, when the weather is somewhat dry, allow no plants nor beds to suffer in any degree for want of water, as, if this is not attended to when necessary, such plants as the Verbena and the Calceolaria will soon become unhealthy. The wet and comparatively cool weather has been favourable to the healthy development of the Calceolaris; although, in some gardens, the cultivation of this fine bedding plant has been discontinued on account of its liability to become diseased or to die suddenly off, and this circumstance is to be regretted, as there is no plant of similar colour belonging to any other family of plants which can equal in beauty the numerous varieties of the yellow Calceolaria, for which it is no easy matter to find substitutes. Probably the best will be found among the various kinds of yellow bedding Pansies. The best with which I am acquainted is a variety named Harris's Yellow Bedder, which was raised some years since by a nurseryman of Bury St. Edmunds. This variety is of a remarkably dwarf and compact habit of growth, exceedingly floriferous, is unaffected by the brightest sunshine, remains uninjured by rain, and continues to bloom for nine or ten months out of the twelve. Attend carefully to the various routine operations, and endeavour to maintain the greatest degree of order and neatness in all departments of the gardens and grounds.—P. Grieve, *Culford, Bury St. Edmunds.*

Hardy Fruit.

The improved state of the weather has saved our fruit crops, and also the trees themselves. Peaches, Nectarines, and Apricots, are now looking as vigorous as they usually do after one of the most genial of summers, and the fruit is swelling rapidly, and, though late, will be unusually fine. If nailing, stopping, and laying-in bearing wood for next year has not yet been completed, let such operations be done at once, in order that the trees may reap the full benefit of the brighter days we are now having. Many kinds of Apricots will now be ready for gathering; this is best done early in the morning; and, as the slightest bruise will cause the fruits to decay, due care should be exercised. If placed in a cool airy room they will keep for at least a week after being gathered. Early Pears, such as Jargonelle, Citron des Carmes, Beurré de l'Assomption, and Williams's Bon Chrétien, should not be allowed to ripen fully on the trees, as, in such cases, the flavour is never so good as it is when the fruit is gathered early and ripened in the fruit-room. These varieties are now all ripe enough to gather; but, where there is a good supply of any of them, their season may be prolonged by gathering them at intervals of a few days, as they then come in for use successionally. The same remarks apply to early dessert Apples, such as Early Harvest, Joanneting, Irish Peach, and Devonshire Quarrenden. Many kinds of Plums are now ripening fast, and those for preserving should be gathered as soon as they are ripe, in order to prevent unnecessary exhaustion of the trees; any that are to be kept for dessert will have to be protected from both wasps and birds. From new plantations of Strawberries, which are now growing freely, all runners should be removed, and the ground should be frequently stirred and cleared of weeds. As soon as the supply of plants for forcing and making new beds has been obtained, clear away all runners from old beds, and fork up the soil between the rows, but not so deeply as to injure the roots. The excessive wet which we have had has caused an undesirable second growth of Apples and Pears, both of which should be at once pinched or stopped back, in order to induce the formation and development of fruit buds. Any trees growing too vigorously, and, as a natural consequence, fruiting shyly, should now be "noted," and, at the proper time, have some of the superabundant roots removed, an operation which never fails to induce greater fruitfulness.—W. Wildsmith, *Heckfield.*

Tomatoes and Wasps, &c.—Some say that Tomatoes prevent wasps from entering fruit-houses, and a correspondent of "Moore's Rural," says—"Set a Tomato plant into each hill of Cucumbers, Melons, and Squashes, and you will have no trouble from the striped bugs that are so destructive to these plants. The plants can be tied to stakes, and if well pruned when large, both subjects can proceed with their fruiting without detriment to one another."

M. Thiers is an enthusiastic horticulturist. He knows each flower in his garden, and treats it as a personal friend. The little semi-circular pleasure-ground at the back of his mansion in Paris is tended by two gardeners. The master's ideal is so high that they scarcely suffice for the work. There is no fresher or more delicious spot in Paris than this oasis. Birds are encouraged to settle in it. The Commune did not destroy the old trees. But a fine Poplar and Mountain Ash were killed by the demolition dust.

THE KITCHEN GARDEN.

THE POTATO DISEASE.

This set in this season ten or twelve days before its usual time, but only, or at least principally, in gardens that were close and confined. During the last four years I saved my Fortyfolds, without having one diseased tuber amongst them, merely by having lifted them by the end of the first week in July; but this year the disease set in before I had my early sorts up, and they are now affected as much as the others. I cannot but admire the perseverance of Mr. Worthington Smith and others in discovering resting spores, &c.; but how did they get upon my Fortyfolds, that had been grown free from them for four years previously, and were planted this season a long way from any other Potatoes? Nevertheless, they are now covered with disease. Now, as to the so-called new disease. I may just say that it is nothing more or less than the "curl," which was the precursor of the more fatal disease forty-two years ago. A curious instance of curl happened amongst my Potatoes this season. In March, I had some tons of Victorias from Scotland, as a change of seed. After preparing a quarter of an acre of ground for their reception, I cut into sets two sacks full; these I planted by the side of some of my own saving, which had been all spread out and sprouted well before planting. The freshly-cut sets grew very well, but many of them failed and came up full of curl. Nevertheless, they appeared to be, upon the whole, a fair crop. I prepared another piece—about a quarter of an acre—and planted five rows down the middle of the piece with the cut Scotch seed, which had been kept over for a week or more after having been cut before they were planted. On each side of the five rows I planted five rows of my own seed, that had been spread out six weeks before planting. The result was that the cut sets from end to end of the long rows—100 yards each—were a mass of curl, whilst the other ten rows showed not a single symptom of it. Now, this is a result that is entirely attributable to keeping the sets, some time after they were cut, in a sack, so that we must not too hastily blame our friends the Americans for the curl. I have, indeed, several kinds of American Potatoes, including the Snowflake, every eye of which I used as a set, planted in the end of April or beginning of May, which at present are simply magnificent. I see in the gardens about Weymouth, where I have been for some weeks, that late kinds appear free from disease; and in the fields, where they enjoy both sun and air, they look well, and, as far as I have yet been able to examine them, are in good health. John Scott.

Merriot, Crewkerne.

New Varieties of Peas.—Allow me to inform "Rambler" (see p. 157) that Laxton's William the First is superior in every way to Sangster's No. 1; whilst Omega, only growing 4 feet high, is not only one of the best flavoured, but also one of the best coloured Peas with which I am acquainted; Veitch's Perfection is good only in some people's hands (for seventeen years past it has always failed with me); Commander-in-Chief and G. F. Wilson are both Peas of great excellence; and the same may be said of Dr. Hogg. When true, British Queen is certainly good; but, when there are Peas as good which only grow half the height, I maintain that they should be substituted for it.—R. Gilbert, *Burghley.*

A Second Crop of Globe Artichokes.—In the beginning of last June, my employer, having no need for any of these till about the end of August, the thought struck me, one day as I passed a patch of Globe Artichokes, that the beautiful heads they were throwing up would be useless. I accordingly told one of my men to cut the stems down to the bottom and see if they would throw up new ones in the autumn. To my mortification, when I again looked round, he had taken a scythe and mown the whole off, leaves and all! However, I made no remark, but patiently awaited the result, although secretly lamenting their decapitation. I am now pleased to tell you, however, that they are growing away vigorously, throwing up fine young stems, and already a few of the heads are as large nearly as my clenched fist.—A. M.

Experiment with the Snowflake Potatoes.—The following is as nearly as possible a correct statement of the results that have been derived from planting 1 lb. of Snowflake. I dug them up because, the haulm appearing quite withered, I thought that the tubers were ripe; nor was I mistaken, as they were, with few exceptions, separated from the parent plant. I have cooked them, both by boiling and steaming; the latter process I prefer, and am so pleased with them, that it is my intention to store as many of them as I can for seed, but not to plant eyes again. They were planted March 27, 1 lb. being weighed off as the amount, which was cut into thirty-three sets, all of which came to maturity, and were dug on July 29th. The time that elapsed between digging and planting was 124 days, and the number produced was 233 tubers, weighing 45lb. 6¾ oz., besides 54 tubers which were not weighed, as they were under 1 inch, making a total of 287. The heaviest produce from one set was 2 lb. 10½ oz., the lightest 8¼ oz., giving an average of 1 lb. 6 oz. The soil in which these Potatoes were grown was loam, and the sets were planted immediately after they were cut, and manured on the top. The rows were between Raspberry-beds, and had a north and south aspect. Only two tubers were diseased. The ground was not cropped last year, but the year previous carried Carrots and Parsnips.—John H. Howard.

Late Peas Sown in November.—If late Peas are sown in November in the same way as early sorts, they come in usefully in the following summer. We sowed a number of late kinds last season along with early sorts, and they came in for use from the second to the third week in June, and were of much service. They were sown on a border, in rows about 20 feet apart, allowing the stakes to give shelter to dwarf kinds which were sown between them, as well as to Lettuce, Endive, &c. Those which did best were Champion of England, Veitch's Perfection, and Ne Plus Ultra. The last named were very fine, and lasted longer in bearing than the earlier kinds. We depend on those planted out from boxes for our main early crop; but, of late years, we have fallen back on the old system of sowing in November. Several cats, trained to live in the garden, keep such crops safe from rats and mice; and ashes, or old Mushroom manure, placed along the rows, afford good protection during very severe weather.—M. Temple, *Blenheim.*

THE FRUIT CROPS.

SCOTLAND.

Dumfriesshire.—Drumlanrig Castle.—Upon the whole, fruit crops are good in this district. Small fruits, such as all kinds of Currants, Gooseberries, and Strawberries, are unusually abundant; Apples are a good crop; Pears, moderate, and the same may be said of Cherries, except Morellos, which are very abundant. There are moderate crops of Peaches, Apricots, and Plums, but the state of our trees and the climate are such as to preclude the possibility of heavy crops. There is no attempt made to grow Figs upon the open wall. Nuts are very abundant in a wild state in the woods. We have tested some thirty-six varieties of Strawberries here, and find some that we have proved excellent elsewhere, to be worthless here. Grove End Scarlet is the most valuable of any for preserving. Indeed, it may be considered a pity that this old variety is not much more cultivated than it is. Of the larger sorts, the best of any tried here for this soil and climate is Wizard of the North. All sorts of Gooseberries do well. The Raspberry that does best is Prince of Wales. Lord Suffield, Stirling Castle, Croftaury, Catshead and Blenheim Orange Apples yield the best returns here. Delicate sorts that require a longer season, do not thrive nor ripen properly; and the same may be said of Pears.—D. Thomson.

Mid-Lothian.—Dalkeith Park.—Fruit trees came into flower in this district three to four weeks later than usual, set well, and received no check from frost, so that crops generally are considerably above the average. Strawberries and Currants of all kinds have been very abundant, as also have been Gooseberries and Raspberries. The rain came just in time to swell off the fruit properly; therefore, all small fruits have been much finer this season than usual, and we had a sufficient number of dry days to gather them in excellent condition. On the light soil of this district we find the best Strawberry to be Garibaldi (Viscomtesse Hericart de Thury), next James Veitch, Princess Alice Maude, Lucas, and President; for preserving we still grow the Roseberry, but Garibaldi is preferable where small fruit is not an object; Keen's Seedling does not succeed out of doors, but we force it largely and find it by far the best for that purpose. Our best Black Currant is the Black Naples; the best Red, Raby Castle and Red Dutch (Knight's); the best White, Cut-leaved White Dutch. Our best Raspberries are the Red Antwerp and Fastolf. Of Gooseberries the best may be said to be red, Warrington; green, Walnut, Whitesmith; and yellow, Gipsy Queen, Hedgehog. Green Gascoigne, Golden Lion, Crown Bob, Early Sulphur, &c., are also largely grown in market gardens. Apples and Pears are an excellent crop, and, with a few weeks of warm weather to ripen them, they promise to be fine, both in size and quality. The trees, too, are very healthy and free from disease and insects. A few of the best Apples are Cellini, Ecklinville, Lord Suffield, King of the Pippins, Reinette du Canada, Tower of Glamis, Hawthornden, Warner's King, Stirling Castle, and Keswick Codlin. Of Pears Williams's Bon Chrétien, Marie Louise, Louise Bonne of Jersey, Beurré Diel, Jargonelle, Napoléon, and Hessel, succeed as pyramids or standards, and, except the last, do well on walls, on which are also grown Brown Beurré, Easter Beurré, Beurré Rance, Beurré Superfin, Beurré d'Aremberg, Glou Morçeau, Winter Nélis, &c., but the first seven are the best and most profitable. Plums are a good crop; Victoria and Orleans are the best bearers, but Kirke's, Coe's Golden Drop, Jefferson, and Magnum Bonum, are well worth growing, and also the Shropshire Damson. Cherries are a very good crop, May Duke, Black Tartarian, and Elton being the best; Morello always bears freely. Peaches and Nectarines on open walls are good crops, and in an average season ripen well; the best Peaches are Stirling Castle, Bellegarde, and Barrington; the best Nectarines are Elruge, Pine-apple, and Violette Hâtive. Apricots are a heavy crop—Moor Park, Hemskirk, and Kaisha being the best.—M. Dunn.

—— **Oxenford Castle.**—Apricots are a fair crop, though by no means so heavy as last year; the fruit will, however, be larger, and the trees more vigorous, the late rains have benefitted them very much, though it has done injury to ripe fruit. The sorts most esteemed here are Moor Park, Hemskirk, Breda, Shipley's, Kaisha, and Musch Musch, in the order in which they are named. Of Apples there is a good average crop; the fruit is swelling well since they got rain. Our best early sorts are—Keswick and Manks Codlin, Ecklinville Seedling, and Lord Suffield; later sorts—Blenheim Orange, Stirling Castle, Cellini, Northern Greening, and Yorkshire Green. I have still Blenheim Orange in good condition. Of sweet Cherries there is a large crop, somewhat spoiled by the close moist weather after the rain. The best varieties are—May Duke, Black Tartarian, and Bigarreau, the latter fine but shy bearer. Morello Cherries are extra heavy, fruit small in consequence. Our sweet varieties have supplied jam and bottling fruit, hence Morellos are not so much prized as usual. The crop of Gooseberries is extra heavy, and the fruit fine; the kinds most esteemed are—Golden Lion, Sulphur, Hedgehog, Porcupine, Red Captain, Whitesmith, and Warrington. The Plum crop is light, excepting that of Victoria; our kinds are—Greengage, Washington, Blue-gage, Kirk's Seedling, Guthrie's late Green, Coe's Golden Drop, Reine Claude de Bavay, and Damsons of sorts, Orleans, &c. Pears are plentiful, but are not growing well; our favourite sorts, which are true and trusty, are—Louise Bonne of Jersey, Jargonelle, Marie Louise, Beurré d'Aremberg, Crassane, Maréchal de la Cour, and Gendesheim; many other sorts are grown, but are uncertain or worthless. The crop of Raspberries is large, and the fruit fine; the ground in which they grow has not been dug for twelve years, but is annually mulched with manure; the same with our Currant and Gooseberry bushes. There is a good crop of Strawberries on stiff soil, but, when light, many of the successional fruits have not come forward. The flavour, however, has not been quite so good, owing to the showery weather experienced when ripe; Keen's Seedling and Duke of Edinburgh are principal varieties; Vicomtesse Hericart de Thury and Elton Pine are also very fine, and large bearers.—A. Anderson.

East Lothian.—Prestonkirk.—Of Apricots there is a good crop. The kind chiefly grown is Moor Park. The Pear crop is an average one. The principal varieties grown are Jargonelle, Louise Bonne of Jersey, Marie Louise, Winter Nélis, Flemish Beauty, Beurré Rance, Beurré Diel, Beurré d'Aremberg, Williams's Bon Chrétien, Hessle, Moorfowl Egg, and Autumn Bergamot. Of Plums the crop is very poor—Kirke's Jefferson Washington, Victoria, Orleans, Greengage, and white Magnum Bonum are principally cultivated. The Apple crop is very good, most of the varieties are doing well here. Cherries were very abundant; the principal varieties being White Heart, May Duke, Morello, Late Duke, and Early Black. The crop of Morello Cherries is unusually good. Peaches and Nectarines are not grown out of doors here. Strawberries have been very plentiful and good. The kinds grown here are President, British Queen, Dr. Hogg, Garibaldi, Rifleman, Ingram's Late Pine, Elton Pine, Keen's Seedling, and Grove End Scarlet. Raspberries have been plentiful, especially Prince of Wales. Gooseberries are very plentiful, Warrington, Ironmonger, Hedgehog, Whitesmith, Sulphur, and a few of the large fruiting varieties being grown. Of Red Currants the crop is an average one. Red Dutch and Raby Castle are principally grown. Of the White varieties there is a fair crop; White Grape and White Dutch being the chief ones. Black Currants are fairly plentiful; Black Grapes and Lee's Perpetual being chiefly cultivated. Figs are not grown out-of-doors here.—John Garret.

—— **Tynninghame.**—The fruit crops, as a rule, are very heavy here; some of the Apples and Pear trees have failed to bear fruit, but the great majority of these are, like the other kinds of fruit, above the average. The size of the fruit is also larger than usual.—R. P. Brotherston.

Ayrshire.—Culzean.—In this district the crop of all sorts of small fruit is very plentiful, every kind being above the average except Black Currants. Wall and standard fruits of all descriptions are very abundant. The following are a few of the varieties that bear and ripen well here:—Pears—Marie Louise, Passe Colmar, Williams's Bon Chrétien, Windsor, and Gansel's Bergamot. Apples—Cox's Pomona, Doonside Pippin, King of the Pippins, Oslin Pippin, Ribston Pippin, Lord Suffield, Ecklinville Seedling, Keswick Codlin, and Manks Codlin. Plums—Kirk's Blue, Coe's Golden Drop, Jefferson, Goliath, and Victoria. Cherries—May Duke, Kentish, and Morello. —Daniel Murray.

Renfrewshire.—Blythewood.—From the amount of blossom shown this year, on all kinds of fruit trees in our neighbourbourhood, a heavy crop was naturally expected; and certainly all kinds of small fruits have been very abundant and fine. Strawberries were fully an average crop—Eclipse, President, Sir Charles Napier, and Elton Pine being our best. Apples promised a heavy crop, but are dropping off considerably; still we look for a better return than we had last year. Pears are plentiful, but Apricots and Plums did not set well, and, consequently are thin. Peaches, Nectarines, and Cherries, are good, and the trees much more promising than they have been for the last three years. Potatoes in this district look remarkably well, being a good crop, and of fine quality, with no signs of blight.—John Methven.

Perthshire.—Tullyallan Castle.—Apricots here are most abundant, and require much thinning; Apples are a moderate crop; of Pears, some trees are laden, whilst others are nearly bare of fruit; the Plum crop is a moderate one; Strawberries were remarkably plentiful; and Peaches are very abundant. The crops of small fruits of all kinds are excellent.—M. Gilroy.

Stirlingshire.—Drummond Castle.—The fruit crops here are much better than they have been for the last ten years; and, as far as I have seen or heard, they are good in most parts of Scotland.—Roderick M'Donald.

IRELAND.

Fermanagh. — Crom Castle. — Strawberries, Gooseberries, Raspberries, Red, White, and Black Currants are abundant and fine; Pears are abundant, both on walls and standards; of Apples there is a good crop; of Plums but half a crop; Cherries are abundant and fine; the crop of Medlars is good; Apricots and Figs require glass; Nuts are very scarce. During the ten years I have been here I have not seen fruit more plentiful and fine than it is this year.—R. Elworthy.

Sligo.—Markree, Collooney.—We have excellent crops of Apples, Pears, Plums, Cherries, and Peaches, and all kinds of small fruits are both plentiful and of good quality. I also hear favourable accounts from all quarters of this district. From some cause or other, which I cannot account for, Apricots never do well with us. The varieties of the different fruits which scarcely ever miss bearing a good crop, let the weather be what it may, are, amongst Apples, Cox's Orange Pippin, Golden Pippin, King of the Pippins, Keswick Codlin, Yorkshire Greening, and Northern Greening; amongst Pears, Beurré Giffard, Beurré d'Amanlis, Williams's Bon Chrétien, Glou Morçeau, Zéphirin Grégoire, and Knight's Monarch; amongst Plums, Kirke's and Victoria are superior to all others here, and of Peaches Royal George and Noblesse are great favourites; amongst Cherries we consider May Duke, Kentish, and the Morello the most useful.—F. Bottomer.

Waterford, Lismore Castle.—There is a good crop of Apples. Varieties that succeed well, and are, in general, good bearers, are Lord Suffield, Devonshire Quarrenden, Cellini, Hawthornden (old and new), Dutch Mignonne, Sturmer Pippin, King of the Pippins, Alfriston, Blenheim Orange, Manks Codlin, Hambledon, Ecklinville Pippin, Lord Burghley, and Lewis's Incomparable. Of Pears there is an average crop. The following varieties succeed well as wall trees:—Glou Morçeau, Marie Louise, Duchesse d'Angoulême, Seckle, Louise Bonne of Jersey, Williams's Bon Chrétien, Napoléon, Beurré Diel, Josephine de Malines, Beurré d'Aremberg, and Gansel's Bergamot. Of Peaches there is a very good crop, with few exceptions. Plums are scarce. The following are the best varieties:—Washington, Coe's Golden Drop, Victoria, Jefferson, Kirke's, Prince Englebert, Diamond, Greengage, Blue-gage, Rivers's Early Prolific, and Prince of Wales. The Cherry crop is a good one. The following are first-rate kinds: —Bigarreau Napoléon, May Duke, Elton, Black Eagle, Morello, and Belle d'Orleans. Nectarines do not succeed here so well as Peaches; the trees are tender, and the wood does not ripen. The following varieties are the most satisfactory:—Hunt's Tawny (a certain bearer), Violette Hâtive, and Downton. Apricots are seldom grown in this district. Of Strawberries there is a good crop. The following are first-rate sorts, and can be highly recommended:—President, Amateur, James Veitch, Dr. Hogg, Sir J. Paxton, and Sir C. Napier. We invariably secure a good crop by thoroughly watering when the plants are in blossom. Small fruit, such as Currants, Gooseberries, &c., are abundant. Nuts are not generally grown.—W. Stone.

Meath.—Headfort House.—Figs are very good; Apricots half a crop; Apples and Pears, very good; Peaches and Nectarines, good, but late; Strawberries have been very fine in some places, in others, none; Nuts, very good; Gooseberries and Currants, good; Raspberries, good, but bad in flavour; Cherries, best of crops. The Potato crop is good at present, but disease is appearing in places; the tubers are, however, as yet, dry and clean, and have every appearance of being better than they were last year.—John Clews.

Dublin.—Vice-regal Gardens.—Apricots hereabouts are a small crop; they showed plenty of bloom and seemed to set well, but the cold east winds, together with continuous wet, checked their growth, and ruined all prospects of a crop. Pears on walls are a moderate crop; those on standards are rather under an average crop; free-bearing kinds, such as Marie Louise, Glou Morçeau, Napoléon, Beurré Diel, Beurré d'Amanlis, Beurré Hardy, and Beurré Bosc, are yielding good crops, but many varieties have failed altogether. Of Apples, autumn varieties are plentiful, but good winter sorts generally are scarce. Plums are a thin crop on walls, while on standards they are a total failure, as are also Damsons. Cherries are under an average crop; they showed abundance of bloom, but shed their fruit in the stoning process; Morellos, that are usually good here, are poor this season. Out-door Peaches and Nectarines are a scanty crop. Figs are plentiful, but late, which is nearly equivalent to a failure, as here it is only the first of the crop that comes to maturity. Strawberries have been a heavy crop and fine in quality, the fruit being extra large. The varieties we depend upon mostly for forcing and for a general crop are—President, Sir J. Paxton, and British Queen. Small fruits of all sorts are plentiful and good. Potatoes look well at present, their haulm being particularly robust, but their ultimate safety will depend, in a great measure, upon the amount of bright sunshine which they experience during the present month.—G. Smith.

Wicklow.—Killruddery.—The crops of Morello Cherries are abundant, but other sorts are scarce; Plums are an average crop, except Damsons, which are scarce. Apples are abundant and good, but Pears, although they are plentiful, are inferior in quality. Strawberries were plentiful and excellent in quality. Peaches grown under glass are abundant; of those grown outside there are very few. Of Walnuts and Figs there is a heavy crop; Cob Nuts and Filberts are scarce. All small fruit is abundant and excellent in quality. Our soil here is very light and rich, resting on blue marl, position very low; but favourable in dry summers. The varieties of Apples that thrive best in this neighbourhood are:—Dessert kinds—Quarrenden, Joanneting, Kerry Pippin, Blenheim, Early Nonpareil, Red Ingestrie, Court Pendu Plat, Golden Harvey, and Hubbard's Pearmain; kitchen kinds—Emperor Alexander, Lord Suffield, Golden Knob, Hawthornden, Mére de Menage, Norfolk Beefing, Bess Pool, and Yorkshire Greening. Pears — Jargonelle, Williams's Bon Chrétien, Swan's Egg, Doyenné d'Eté, Marie Louise, Easter Beurré, and Beurré Rance. Plums:—dessert kinds — Jefferson, Kirke's, Ickworth Impératrice, Huling's Superb (a splendid Plum), Greengage, Coe's Golden Drop, and Reine Claude de Bavay; kitchen kinds —Victoria, Orleans, Pond's Seedling, Goliath, and Early Rivers. Cherries — Black Tartarian, May Duke, Elton, Frogmore Early Bigarreau, and Morello. Gooseberries —Red, Warrington; amber, Ironmonger; green, Walnut and Antagonist. Strawberries—Sir Charles Napier, Eclipse, President, Dr. Hogg, and Rifleman, which I imagine will do well in this locality.—Thos. P. Turner.

WALES.

Penllergare, Swansea.—Apricots are not grown here now, as they very seldom fruited; Apples are an average crop; Pears are a light crop, many trees being without fruit; of Plums, we have very few; Morello Cherries are abundant; and of Peaches and Nectarines we have good crops. Strawberries, and bush fruit, have been abundant. The following kinds of Pears do best, viz., Conseiller de la Cour and Beurré d'Aremberg upon walls; Louise Bonne of Jersey upon espaliers; Williams's Bon Chrétien upon pyramids; Jargonelle upon espaliers; Beurré de Capiaumont upon walls; Duchessse d'Angoulême upon pyramids; Hacon's Incomparable upon espaliers; Marie Louise upon espaliers; Belle de Noel upon pyramids; Beurré d'Aremberg upon walls; and Swan's Egg upon espaliers. The following varieties, generally crack and shrivel before they are ripe, viz., Beurré Diel, Beurré Rance, Bishop's Thumb, Napoléon, Pius IXth, Baronne de Melo, Bergamotte d'Esperen, and Ne Plus Meuris. We grow about thirty varieties of Pears, of which those named in my first list always produced good crops in favourable seasons, and the fruit is of good flavour. The other varieties bear well, but never can be depended upon for dessert. Our soil is a stiff loam, rather shallow, resting upon clay; the position is high, sloping towards the east, and well open to the south. Apricots and Plums are no good in this neighbourhood. It is said that where Rhododendrons grow luxuriantly in the common soil Apricots will not thrive. Is that true? Rhododendrons grow here in the natural soil, quite rampantly, both in the woods and in open situations.—John Nunns.

Dynevor Castle.—Apricots do not do well on open walls here. Of Apples, some trees have yielded good crops, others none. The Pear crop is good on walls, but Pears are not much grown. Of Plums on walls, the crop is light; of Strawberries, very good; of Cherries, few are grown. Peaches and Nectarines are a good average crop. The Fig crop is good, and small fruits of all kinds are plentiful. Walnuts are scarce, but Hazel Nuts are abundant. The undermentioned are a few of the kinds of fruit that do well here:—Apples—Keswick Codlin, Blenheim Orange, Herefordshire Pearmain, Wellington, Syke House Russet, Wheeler's Russet, Cox's Orange Pippin, and August Pearmain. Pears—Napoléon, Brown Beurré, Beurré Clairgeau, Winter Crassane, Beurré Bosc, Beurré Diel, Van Mons Léon le Clerc, Marie Louise, and Louise Bonne of Jersey. Plums—Victoria, Greengage, Coe's Golden Drop, Diamond, Kirke's Round, and Washington. Peaches—Royal George, Red Magdalene, Barrington, and Late Admirable.—James Ticehurst.

ENGLAND.

Additional Reports.

Middlesex.—Sion House, Brentford.—We have hereabouts abundance of Apples, Plums, Walnuts, and, indeed, of all kinds of fruits. Market gardeners in this neighbourhood are, in some instances, using props to their fruit trees, so abundant are the crops. Peaches, Nectarines, and Apricots are excellent on open walls; Gooseberries cracked much through excessive wet.—J. Woodbridge.

Oxon.—Great Tew, Enstone.—Fruits of all kinds here are this year good. Apples, Pears, Plums, and Cherries are plentiful; Strawberries, too, have been abundant, but were much spoiled by the rains; Cutbill's Prince of Wales is an excellent late kind, which we have now (Aug. 6) in daily use. Raspberries, and Red, White, and Black Currants are abundant; Walnuts are likewise a great crop; Filberts, good. Of Apricots we have not many; Peaches and Nectarines are fair crops, but, having a good large orchard-house, we do not pay those out of doors that attention which we used to do. In the orchard-house we have good crops, as usual, of everything. After eight years' experience with orchard-houses I would advise all who intend building one to have plenty of room and abundant ventilation; our trees, which are mostly in pots, are grown upon Mr. Rivers's plan. We gather our best Apples and Pears from trees grown in this way, and I cannot too highly recommend the single diagonal cordon Pears on which the fruit is much finer and better in flavour than that grown on trees trained in the usual way. Some vertically trained do also equally well. I do not think the autumnal Raspberries (red and yellow) are generally in cultivation; we have beautiful crops of them here from the middle of October onwards.—A. Macfarlane.

Yucca stricta ("Revue Horticole"). See p. 132.

Sussex.—Petworth Park.—Of Apples there are generally good crops, both trees and fruit looking remarkably healthy and well; the Pear crop is not so heavy as last year, but is abundant in some places; the crops on wall trees and pyramids here are good; Plums and Damsons are rather thin, but some of the wall trees bear heavy crops; Peaches and Nectarines are plentiful, both trees and fruit looking healthy and well; of Apricots there is a fair crop, but not so heavy as last year, the fruit, however, is fine; Currants, Raspberries, and Gooseberries are each and all abundant, and the fruit fine, but a large quantity was spoiled by the late wet and cold weather; Cherry trees bear heavy crops, and the fruit is fine on wall trees; standards and pyramids suffered much from the wet, more than half the crop being spoiled, except that of Morellos, which are finer and more abundant than for several years; there are some very good crops of Figs in this neighbourhood; Strawberries were abundant, and the early kinds were excellent, but later sorts suffered much from the wet; Filberts, Cobs, and common Nuts are very abundant, there being heavy crops everywhere; of Walnuts there are heavy crops; Medlars and Quinces are rather scanty; Mulberries are plentiful; the Cranberry beds here are covered with fruit; out-door Grapes are plentiful but very backward; I fear they will not ripen this year. For the past ten days we have had bright hot weather, and everything has improved wonderfully. If we get fine weather, some fruits, such as Apples, Pears, Plums, Peaches, and Nectarines will, I anticipate, prove excellent crops this year.—Geo. Breese.

Shropshire.—Willey Gardens, Broseley.—Apricots here are fine in quality and abundant; of Apples we have large crops; Pears, too, are very good, as are also Cherries, especially Morellos; Figs are good; and Peaches and Nectarines are good in quantity and promise to be fine; Strawberries have been a moderate crop, and the best part of them was spoilt by the rains; of small fruits, crops are very good, and the fruit is fine in quality; Nuts are excellent, and the heaviest crop we have had for years. I may add that all hardy fruits do well in this district, especially Damsons, of which large qantities are grown and good prices realised for them, in many instances amounting to double the rent of holdings.—W. H. Welch.

Leicestershire.—Gopsall Hall, Atherstone.—Fruit crops hereabouts are, upon the whole, abundant. Stone fruit, such as Peaches, Nectarines, Apricots, and the choicer kinds of Plums on walls, are all that can be desired. Figs are also plentiful; but, unless we have fine weather, and plenty of sunshine, many of them will not ripen. Strawberries have been abundant, but they sustained much damage from the heavy rains. We lost quite three-fourths of our crops. Gooseberries, Currants, and Raspberries are plentiful, as are also Pears. Of Apples, we have but few in the garden; but in many orchards they are abundant. Cherries have also been plentiful. I may add that Potatoes are badly diseased; not only early sorts, but also late varieties. The haulm is fast decaying, growth is permanently checked, and nothing but a continuance of dry weather will preserve the tubers from perishing. The American varieties, all of which I grow, are as bad as our own kinds.—J. P.

Hants.—Strathfieldsaye, Winchfield.—Hardy fruit crops vary considerably hereabouts; Apples are a fair crop, but Pears, generally, are less than half a one. This I attribute to the severe frost which we had on the 24th of April, when the trees were in full blossom—Marie Louise, Althorpe Crassane, British Queen, Beurré Capiaumont, Beurré d'Amanlis, Beurré Hardy, and Beurré Clairgeau suffered least. Many years' observation has convinced me that those named are not only among the surest bearers, but kinds equal in quality to any in their respective seasons. Cherries, especially Morellos and Kentish, have been abundant; among dessert kinds the Black Tartarian is by far the best here. Plums on walls are a fair crop; Kirke's, Greengage, Jefferson, and Golden Drop are my favourite sorts. Apricots are a splendid crop, and the fruit is unusually fine and high-coloured; Moor Park is the best, but the Royal is a fine fruit, and nearly three weeks earlier. Peaches are a full crop, and promise to be fine; we cover our Peach walls very carefully from the time the first bloom opens till the beginning of June. Of small fruits, Strawberries and Raspberries have been very heavily cropped, but much of the fruit has been spoiled by the excessive rainfall. Gooseberries and Currants having suffered much from frosts while in blossom, have been thin here this season.—James Bell.

Hertfordshire, Rabley.—Apples are very plentiful in places. The best varieties here are Quarrenden, Hawthornden, Wellington, Wyken Pippin, Lord Suffield, and the different kinds of Pearmain. The Pear crop is also a good one, but more partial than that of Apples. The best kinds are Bon Chrétien, Jargonelle, Doyenné d'Ete, Doyenné du Comice, Louise Bonne of Jersey, Marie Louise, Winter Nélis, and Passe Colmar. Apricots are a heavy crop. The best kinds are Moor Park, Breda, Shipley's, and Hemskirk. Of Peaches there are very heavy crops. The best varieties are Bellegarde, Early Beatrice, Early Louise, Royal George, Stirling Castle, and Violette Hâtive. Nectarines are a very heavy crop. Those that have done best are Elruge, Hardwicke Seedling, Downton, Violette Hâtive, and Pitmaston Orange. Plums are most abundant, the best being Orleans, Prince of Wales, Victoria, Kirke's, Mitchelson's Early, and Jefferson. Cherries are very plentiful. The best kinds are Circassian, Bigarreau Napoléon, Frogmore, May Duke, Kentish, and Morello. The Strawberry crop has been a very heavy one. The best are Sir C. Napier, President, Dr. Hogg, Sir Joseph Paxton, and Cockscomb. Raspberries are very plentiful, the best being Fillbasket, Prince of Wales, and Antwerp. Currants are a good crop, the best being Lee's Prolific Black, Black Naples, White Dutch, Red Dutch, Grape, La Versaillaise, and Raby Castle. The Gooseberry crop is partial, but plentiful in places. The best varieties are Crown Rob, Rough Red, Ironmonger, and Champagne. The crop of Medlars is good. the best being Dutch and Nottingham. Nuts are abundant, and so are Walnuts in places. The crop of Quinces is partial. The Damson crop is most abundant, and Mulberries plentiful. Figs are a very good crop; the best kinds being Brown Turkey and Brunswick. Taking the fruit crop, as a whole, it is the most abundant I ever remember. The trees are in a most healthy condition, and promise to perfect their fruit thoroughly. The crops are in good condition, free from blight, and more healthy at this season of the year than is generally the case.—E. Bennett.

Yorkshire.—Thorpe Perrow, Bedale.—Apples here are very plentiful, the trees in many places being quite borne down with their weight, and, where not thinned, the fruit will be small, especially the finer sorts for dessert. Apricots are a good crop, but late in ripening; the trees suffered so much during the winter that their branches are in many places dying. This always takes place here after a severe winter. Apricots cannot withstand the thermometer at zero, in our damp climate. Cherries are abundant, especially Morellos. Peaches are good, but late; the trees suffered a little in winter. Of Nectarines, we have none out of doors. Pears are very abundant, and have required a great deal of thinning. Filberts and Nuts, in the hedge rows, are plentiful; and of bush fruit of all kinds we have had enormous quantities. Strawberries have been plentiful, but bad in flavour, and much spoiled by the wet. Plums are a partial crop. The sorts which, when in bloom, stood the frost best, are the Victoria, Jefferson, and Magnum Bonum.—William Culverwell.

Lancashire. — Huntroyde, Burnley. — Currants, Gooseberries, and Raspberries are plentiful crops here, and the fruit is fine in quality. Cherries and Plums are both good crops; Victoria, Kirke's, and the old Greengage do best in this locality. Strawberries have been heavy crops, and the fruit individually fine; President and Yates' Seedling succeed best with us, the latter being the only variety grown by many of the market gardeners in this part of the country. Pears are only an average crop; Marie Louise, Passe Colmar, Duc d'Aremberg, Glou Morçeau, and Autumn Bergamot are amongst the best croppers in this neighbourhood. Apples are a complete failure; bloom was plentiful enough, but when the young fruits set they were badly attacked by a maggot, which destroyed fruit and young wood too. On Apricots and Peaches, protected by glass lights in spring, we are able to secure pretty good crops. I may add, that Potatoes, up to the present date, have done well; the crops of them are good and the tubers clean. The season with us is altogether three weeks later than last year.—H. Lindsey.

THE FUTURE OF THE ROYAL HORTICULTURAL SOCIETY.

The Council report that they have obtained from the Royal Commissioners terms which will, in their opinion, free the Society from its difficulties. The present agreements between the Royal Commissioners and the Society are so complicated, that any attempt to deal with them otherwise than by way of modification was impossible in the time which the Council, without risking the very existence of the Society, could devote to the negotiation, and a question of some importance, involving the construction of these agreements, is still pending, but is, as the Council believe, in a fair way towards being settled amicably. The nature of this question is such that it is not possible to explain it within the limits of an ordinary report, but the Council refer to it inasmuch as it has necessitated the wording of the 3rd clause of the proposed first agreement, which, to those Fellows who are not intimately acquainted with the relations between the Corporations, may appear obscure. Two new agreements are proposed to be made between the Royal Commissioners and the Society. By the first the Commissioners absolutely remit the payment of the £2,400 rent now due, and authorise the Society to borrow £7,000 to pay its debts and repair its buildings; and if, at the end of three years, they shall exercise the power given to them by clause 2, they must take upon themselves this £7,000 of new debt, or so much of it as shall not have been repaid, out of what would have been their own rent. The Society's lease cannot in any case be forfeited before the end of the year 1878. It cannot be then forfeited unless the income of the Society for that year fall short of the amount required by clause 2. Even if such income should for that year fall short of that amount, there can be no forfeiture if the Society shall pay its rent in accordance with the present agreement; or if the society shall next year, out of monies which it could tender as rent, reduce the new debt by £2,400. By the second new agreement the Council hope to obtain part of the French Annexe, the garden attached thereto, and a new entrance close to the Royal Albert Hall, in consideration of certain concessions in respect of the strip of land lying to the north-west of and outside the gardens, which they believe can be made without injury to the Society's property.

The following are the heads of proposed new agreement:

1. The subsisting agreements to be continued in full force where they are not inconsistent with this agreement.

2. The Commissioners to have the power of determining clauses 6 and 7 of this agreement at the expiration of the third year from its commencement, if the income of the Society for that year, from entrance fees and the subscriptions of fellows and other annual subscribers, shall not amount to £10,000, and the Commissioners shall in that case take upon themselves the repayment of the sum of £7,000, hereinafter mentioned, or so much thereof as shall remain unpaid, and the interest thereof.

3. In the event of the Commissioners exercising the power by clause 2 hereof agreed to be given to them, they shall, notwithstanding anything herein contained, be entitled to any right of re-entry which they may, prior to exercising the said power, acquire by virtue of subsisting agreements, unless the Society shall in the year 1876, out of monies which under those agreements would be applicable to the payment of the rent thereby reserved, and on or before the day on which such rent ought to be paid, pay in respect of interest on, and in reduction of the principal of, the said sum of £7,000, the full sum of £2,400, which but for this agreement ought to be applied in the payment of such rent; in which case such conditional right of re-entry as is given to the said Commissioners by the subsisting agreements shall be deemed not to have arisen.

4. Save in so far as their claim thereto may be necessary to preserve such right of re-entry as is referred to in the last clause, the Commissioners shall remit to the Society the sum of £2,400, which under the subsisting agreements would be payable as rent in 1876.

5. The Society may borrow such sum, not exceeding £7,000 as

shall be necessary for the discharge of its existing liabilities other than its debenture debt, and for the thorough repair of its buildings at South Kensington.

6. The Society shall not accept any more life compositions without the written consent of the Commissioners.

7. Until the present debenture debt of the Society shall be fully paid off, all sums of money which, under the subsisting agreement, would be payable to the Commissioners as rent, shall be applied (*a*) in payment of the interest to accrue upon such sum as may be borrowed by the Society under clause 5 hereof, and in repayment of the principal monies so borrowed until they be fully repaid; (*b*) for the mutual benefit of the Commissioners and the Society in such way as shall from time to time be determined by the Expenses Committee and be approved of by the Commissioners.

8. Whilst the said clauses 6 and 7 remain in force the Society shall, on the authorised bank holidays or on such other days not exceeding five in number in any one year, as may be agreed upon by the Society and the Commissioners, admit the public to the South Kensington Gardens free, or at such charge as may be fixed by the Commissioners.

INTERNATIONAL EXHIBITION, PHILADELPHIA, 1876.

In the following circular just received from the office of the United States Centennial Commission, 904, Walnut Street, Philadelphia, will be found a classified list of articles which will assist contributors in their selection of exhibits, and also afford some idea of the accommodation to be found in the department devoted to horticulture. The special exhibitions will be mostly confined to local contributions, tender exotics, plants in bloom, and cut flowers, which, on account of their perishable nature, cannot be sent from long distances. Contributors from a distance must rely upon the opportunities they can have for planting in the open ground, and there the space for a fine display will be ample.

Bureau of Horticulture.

The horticultural building occupies a central position in a portion of the park set apart for this department. The grounds are conveniently placed and beautifully shaded with trees, thus offering a variety of suitable situations for the contributions of ornamental plants that will succeed best in the open air during the summer months. Plants requiring partial shade, and others that prefer the full sunlight, will be placed in positions best suited to their nature. The conservatory or main hall of the building (230 by 80 feet) will be planted and decorated with large Palms and other tropical plants by this department. There are four greenhouses attached to the conservatory, 30 by 100 feet each, which will be allotted to exhibitors of choice exotic and rare hot-house plants. The buildings will be heated by the best and most approved system of hot-water. All kinds of hardy shrubs and trees, tropical and ornamental plants suitable for the decoration of the garden and lawn are in demand here, while, on the other hand, there are but few purchasers for rare and tender exotics.

The following will, perhaps, convey some idea of the class of plants referred to above:—Araucarias, Cupressus, Cedars, Yews, and all sorts of Coniferous plants. Hollies, Aucubas, Euonymus, Aralias, Box, and other choice evergreens. Rhododendrons, Azaleas, Kalmias, &c. Aloes, Agaves, Yuccas, and Cacti of different sorts. Palms, Dracænas, &c. The space allotted to, and accepted by, exhibitors for the display of such ornamental plants, trees, &c., as above mentioned, should be bordered with bulbous roots, such as Hyacinths, Tulips, and other early flowering kinds, that will be in their best condition at the time of the opening of the exhibition; such bulbs to be replaced with summer-blooming plants. Allotments for exhibitors in the park and grounds will be prepared and made ready this autumn. Conifers, Rhododendrons, and other choice evergreens, should be shipped in the spring of 1876, and ought to arrive here not later than the middle of April, and be placed at once in the position assigned them. Bulbous roots, Roses, &c., should be sent early in the autumn, and planted before winter sets in. Contributors in England, Belgium, and Holland, should contribute fine collections of bulbous roots, Hyacinths, Tulips, Japan Lilies, &c., all of which are in great demand here. Such exhibits as those last mentioned could be consigned to this department, to be planted in the fall, and properly cared for during the winter; they would bloom and be in their best condition at the time of the opening of the exhibition. The expenses of such exhibits would be very small in comparison with others that require daily attendance. In order to enable the bureau to make its arrangements complete, and have the grounds laid out and made ready before winter sets in, it is absolutely necessary that applications should be made as early as possible. (Signed) C. H. Miller,
Chief of Bureau of Horticulture.

Outdoor.—Ornamental trees and shrubs, herbaceous perennial plants, Coniferous plants, Rhododendrons and other ornamental evergreens, Roses (showing method of planting), Ferns (collections), Cactus (in varieties); new plants (with statement of their origin); annuals, and other soft-wooded plants, to be exhibited in successive periods during the season; bulbous and tuberous-rooted plants.

Indoor.—Hothouse and conservatory plants, Orchids and parasitic plants, Ferns—their best method of cultivation under glass and in Wardian cases; plants—the best methods of forcing and propagation; succulent plants—their arrangement and culture; aquatic plants—their culture under glass or in aquariums; plants used in commerce—their uses and application; herbarium—botanical specimens, method of arrangement, classification, and preservation; floral designs, bouquets, &c., and cut flowers.

Adornments of Horticulture.—Garden statuary, fountains, vases, pedestals, and artificial edging for the parterre, summerhouses, artificial rock, grottoes, caves, &c.; window gardening as applied to dwellings.

Garden Requisites.—Horticultural buildings, propagating houses, hot-beds, &c.—the best mode of heating them; portable or moveable orchard-houses and Graperies, park seats, chairs, plant and flower stands; ornamental wirework, viz., fences, gates, trellis bordering of flower-beds, porches; utensils for portable habitations of plants, viz., ornamental flower-pots, plant-boxes, tubs, Fern-cases, &c.; structures for the propagation, culture, and forcing of small fruit.

Implements of Gardening.—Instruments of operation requiring more skill than physical force; tools or simple instruments for performing operations of the soil as applied to gardening; instruments of action as used preparatory to operating, viz., compasses, levels, lines, and ground measures; instruments of designation, viz., labels or number tallies for pot plants and for plants in the open ground; hanging labels; machine for transplanting trees, shrubs, &c.; portable forcing pumps for watering plants in greenhouses; methods of watering the garden and lawn.

Art and Science of Horticulture.—Designs for the laying out of gardens and the improvement of private residences. Designs of rustic constructions and adornments for private and public grounds, public squares, parks, &c., showing arrangement of commercial gardens or nurseries, and for the parterre. Examples of planting and the ornamental grouping of trees, plants, and shrubs. Treatment of water for ornamental purposes. Formation of lawns and after management. Works on botany, arboriculture, and horticulture, landscape gardening, and horticultural engineering. Models in wax of flowers, fruit, &c. Illustrations of plants and flowers.

GARDEN PARTIES IN PUBLIC GARDENS.

On the invitation of Principal Sir Alex. Grant and the Senatus Academicus of the University of Edinburgh, upwards of 3,000 ladies and gentlemen attended a garden party the other day in the Royal Botanic Gardens. Rain fell in somewhat heavy showers in the middle of the day, and it was feared that the entertainment—quite a novelty, by the way, in Edinburgh—would be shorn of half its attractions; but the weather fortunately cleared up before the hour of reception, and the afternoon, though not brilliant, was fine and cool. The party, indeed, proved a great success, the guests enjoying an agreeable promenade in the beautiful grounds while entertained with a concert of excellent instrumental music. Sir Alex. Grant, Professor Balfour, and others, received the guests on their arrival, at the end of the entrance avenue, just in front of a fine specimen of the Wellingtonia gigantea, planted as a memorial tree in 1861 by Sir Robert Christison. By an admirable arrangement of Mr. M'Nab, the gardeners attached to the gardens, were employed to conduct visitors through the grounds, to point out the more notable plants, and indicate the views of greatest interest. On leaving the entrance avenue, the guests were shown over the Museum of Economic Botany. Adjoining the Museum is the class-room, and here a special exhibition had been prepared by Mr. Sadler, Prof. Balfour's assistant. Its chief feature was a collection of over 300 specimens of Fungi—the majority of them British—some modelled in wax, and others the actual plants. The arrangement was very pretty—the specimens being placed in a convex bed of sand—and the collection, which is larger than has ever been brought together in Britain, proved exceedingly interesting. Among the most curious Fungi were "Satan's Own," one of the most poisonous of the Mushrooms, and an immense Polyporus, 18 inches long and 26 inches in girth, found on a

White Pine tree in Canada. Very attractive, too, were the models of the microscopic Fungi, which cause many of the diseases to which trees and plants are liable. In the same room was laid out a collection of plants of much interest to medical gentlemen. Here were specimens of the insectivorous plants, such as the Dionæa and the Drosera, or Sundew. Among the medicinal or economic plants were the Quassia, from which the well-known bitters are extracted; Coffee, Tea, and the Eucalyptus globulus, or Blue Gum, which of late has been the subject of much attention, not only among aboriculturists, but medical men, from its extraordinary properties in removing malaria. Then there were the Castor Oil plant, the Gum Tragacanth, useful in pharmacy; the Jute, so largely imported from India to Dundee for sacking and other purposes; the Guaiac plant; the Cinchona, from which quinine is obtained; Drimys Winterii, brought from Tierra del Fuego, and very useful as a tonic; the Cinnamon plant, from the Brazils; the Oil Palm, from the west coast of Africa; the Arrowroot plant, from the West Indies; the Bread-fruit tree; the Balsam of Peru, a very rare plant in this country; the Date Palm; the Annotto plant, employed for dying confections and colouring butter; the Lemon Grass, which yields a fragrant oil; the Olive tree; Barbadoes Aloes, extensively used by chemists for disguising the taste of drugs; the Camphor tree; the Tobacco plant and the Cotton tree. Further on, the visitor came across a curious Mexican Cactus, which, in its native habitat, affords sustenance to the cochineal insect used so extensively in dyeing; the Black Pepper and the Cubeb Pepper plants, from the Malay Archipelago; the Cow tree, the juice of which is utilised as milk in Demerara; the Richardsonia scabra, from which Dover's powders and other medicines given in fevers are made; and, lastly, the Ipecacuanha plant, also used in fevers, *apropos* of which it may be mentioned as a curious fact that the large plantations of Ipecacuanha now in India are all derived from plants reared in these gardens and sent out to Calcutta, Madras, and Bombay. Another table was furnished with models and sections of flowers, specimens of the dry rot, and a very interesting landscape formed naturally on a plank of wood by Fungi. Microscopes were also placed at the command of the guests, and among the preparations were the cells of leaves of the Anacharis, commonly called the American Water-weed, which show in the most admirable manner the movements of the living protoplasm. Round the walls were hung beautiful coloured drawings of such medicinal plants as Squills, Aconite, Calabar Bean, Belladonna, Henbane, Capsicum, Jalap, Senna, Nutmeg, Tamarind, Squirting Cucumber, which sends out its secretion with immense force; Assafœtida, Hemlock, Sarsaparilla, Rice, Maize, Millet, and, lastly, the glorious Victoria Regia. It may be well to state here that this unique collection was opened to the public. Visitors were next conducted into the long range of glass-houses, commencing at the east with the Orchid-house. Here might be seen Pitcher plants, the Lattice plant from Madagascar, with leaves like a window lattice; Sensitive plants, whose leaves creep together on the slightest touch, or even when breathed upon; a curious plant, with a dark ruby, mottled, star-like flower, and an odour like that of carrion. In the next house, were Sugar Canes, Bananas in fruit, tree Ferns, and the Papyrus (the Bulrush of Scripture). A temperate-house succeeded, with a fine collection of Ferns and similar plants. In the fifth house, the visitors found another collection of plants, interesting to the medical student—such as the Theobroma Cacao, from which chocolate is made; the Gutta-percha tree, the Paraguayan Tea plant, which is, oddly enough, a Holly, and in no way allied to the true Tea plant; the Bread-fruit tree, Cassia, Cinnamon, and Pimento; the Marmalade, Orange, and Citron trees; the Tamarind, the Tallow tree of China, the seeds of which contain a grease very like animal tallow; the Ginger and Gum-arabic trees, and the Sacred Banyan tree of India. Passing through several other houses containing collections of Palms and ordinary greenhouse plants, the visitors reached the Australian-house, with its Dracænas and Epacrises, and next the Heath-house, where South African plants are displayed. Among the latter were seen specimens of the beautiful crimson Orchid, Disa grandiflora, from the top of Table Mountain at the Cape of Good Hope. The large tropical Palm-houses were next visited, and the collection here, which is the largest and best in the United Kingdom, was much admired. Leaving the houses the visitors wended their way southwards to the arboretum, passing on the way the general collection of plants arranged according to their natural orders; and from the high grounds of the main avenue what are recognised as the finest peeps of Edinburgh were duly enjoyed. Continuing in this direction, the Pinetum, with its fine collection of the newest and best Coniferæ, was surveyed, and visitors passed on to the rock-garden, one of the most remarkable of its kind, and a never-failing source of pleasure alike to botanist and amateur gardener. Between the rock-garden and the herbarium is a beautiful lawn, and here gradually all the guests congregated. In the centre of the lawn was stationed the band. The promenade on the smooth sward seemed to be generally enjoyed, and between five and six o'clock the terraces overlooking the lawn and the Grass slopes presented a gay and animated appearance.

THE VEGETATION OF MADEIRA.

Mr. William Longman, in an article in "Fraser," for August, speaks enthusiastically of the beauties of the vegetation of Madeira. We quote a few paragraphs from a long paper dealing with the island generally:

No one, I think, has adequately described, or even hinted at, the extraordinary beauty of the wide expanses of golden splendour produced by hundreds upon hundreds of acres of Broom and Gorse in profusest blossom, of the marvellous masses of colour—pink, mauve, and brick-dust red—derived from Bougainvillea bracts, and of the wondrously manifold luxuriance of the varied garden flowers.

The gardens of the quintas, which are almost peculiar to the south of the island, are often exceedingly beautiful. They are usually a blaze of colour. Everything grows and blossoms with a luxuriance unknown to the more temperate—and, may I add, more friendly—north. Geraniums grow to a height of 20 feet and more in a few months, and must be cut down yearly to prevent their straggling into useless exuberance. Strange tropical exotics are here naturalised. Bananas, Camphor trees, Nettle trees, Poinsettias, Palms, and Gum trees, with many others, are found in these delicious gardens; while Lilies, Daturas, Bougainvilleas, and flowers too numerous to mention, decorate the neighbourhood of every house, however humble.

But even here—even in these quinta gardens—Nature is niggardly, or, rather, has not had time to do for Madeira what she has done for larger areas. All is silence! or so nearly so that the sounds one hears serve rather to increase the oppressive feeling of want of life than make one perceive its presence. Hardly a bird carols forth its joyous song, or even twitters in the trees; hardly a butterfly flutters among the flowers, hardly a beetle crosses the path. The hum of bees is almost unknown, the mysterious harmony of myriads of buzzing insects' wings, so charming in an English wood, is in Madeira never heard. All seems silent, all seems dead!

The neighbourhood of Santa Anna seemed to me more nearly a realisation of the poet's Arcadia than any place I had ever seen. The soil—now full of Vines, corn, Yams, Bamboos, and Sugar-canes, but before the failure of the Vines, in 1855, densely covered with Spanish Chestnuts, with Vines climbing from tree to tree—is fertile beyond imagination. The land is thickly inhabited by a quiet, peaceful people, capable, however, of being roused to fury. Their picturesque huts, reminding one of those of the South Sea islanders in Cook's voyages—roofed with long-ridged, steep-pitched thatch, fenced in with Bamboos, surrounded and covered with Fuchsias and Geraniums—almost crowd the ground; and the paths, no longer steep and stony, but smooth and of a rich red colour, wander among Chestnuts, and Vines, and hedges of Box, Geranium, and Fuchsia, intermixed with Ferns and Mesembryanthemums.

We made an excursion to the Arco San Jorge, one of the many picturesque ravines of the northern coast. The sea-sprinkled rocks, as we descended into one ravine and mounted up another, were absolutely painted with those thick-leaved plants commonly known under the name of House Leeks in England, but which botanists describe as belonging to the genus Sempervivum in the family Crassulaceæ. They grow in such profusion that one overlapped the other, and with a luxuriance unequalled at Kew or in other gardens. The crown of an ordinary hat inadequately represents their size. Their outer tint was a rich brownish-red, fading insensibly into tender green towards the centre, where the leaves formed a crown of the same colour, but of a brighter hue. Few were in flower, but the beauty of the plant is in its leaves, and not in its flowers.

DRAINAGE OF DWELLING HOUSES.*

The evils of improper drainage are best observed, said Mr. Eassie, in houses that have been from time to time added to until the cottage has become almost a mansion. One is then able to trace the first awakening up of the inmates, when the patrimonial cesspool has filled up and choked the drains. When this happened in villages, all that was done was merely to partially empty the receptacles and clean out the drains. And when this had occurred several times, and the sides caved in, a new dumb-well was sunk, and the drains led into it, the old pit being covered up with a stone. It was cheaper to do this than to fill it up; and, besides, this procedure did not necessitate the absence of the family. It was the same in towns, and only a week ago I laid bare in a west-end London house three cesspools which had been dug in most brotherly proximity, and abandoned in rotation as they filled up with odour and filth. Four cartloads of nightsoil were removed, which could not have seen daylight for half a century. Nor would it now had not the rats formed runs in their vicinity, and allowed horrible smells to invade the house by way of a long-forgotten back-drain. The reason why these ancient nuisances are found inside houses in towns and cities was not because they could not be accommodated outside the house, but because the slops from the kitchen and bath and laundry wastes were insufficient to flush the more solid wastes outsides the walls. In nearly every case, too, the drains were of brick, laid with uneven bed, and through the joints of which the fluids percolated. We will take an instance. A cottage is drained into a cesspool in the kitchen, and, when that is full, another is dug, until the place is honeycombed with them, the sub-soil saturated, and the well poisoned. A common closet is used in the yard, and this performs the same evil functions. By-and-bye water-closets are introduced, and earthenware pipes, and the cesspool for these is now dug down in the garden, with a lower one for an overflow, and both cemented down, air-tight fashion. There is no ventilation either, except through the trapping water of the syphons at the foot of sink-waste, soil-pipe, or rain-water stack. And here I may say that the drainage into a cesspool is not necessarily dangerous —provided only that the waste-pipes of the sinks deliver outside over a trap; provided, too, that the soil-pipes are carried roof high, and a foul-air withdrawing-cowl fixed upon them; then all would be well. It might, in some cases be absolutely necessary also to ventilate the cesspool by an upright shaft, or a ventilating charcoal trap in the stone cover, and it might even be wise occasionally to ventilate the march of the drain. Where a common closet is used, an earth or ash closet ought to replace it. The next difficulty arises where a parish sewer is put in the main road, and the value of the land enhanced so much as to make it worth while to add an extra wing or two, to convert the old stables into servants' offices, and to erect new stable accommodation. When this has happened, sometimes the one-half of the house is drained into the sewer and the other half into the old cesspools. The old cesspools have not, however, been dug up in the basement of the house, nor the urine catch-pit in the stables. The result of this is not difficult to imagine. Even should the whole of the cottage chrysalis, but now winged mansion be drained into the new sewer, it is just possible that the drains are laid without fall, or with backward fall; syphons put in where they ought not to have been; rectangular bends instead of acute ones, and a ventilating shaft not only forgotten, but the sinks, baths, and lavatories taken direct into the drains: and the result, if not disastrous in the matter of health to the inmates, has proved sufficiently annoying to compel the dismissal of the builder and the attendance of the engineer. It is very easy to so arrange the plan of a house that the whole of the wastes shall deliver immediately outside the house, and to have nothing but the outside wall between the water-closets, lavatories, and sinks. When it is found advisable to drain the basement, it can be disconnected from the main drain, so to speak, by interposing over the junction a ventilating shaft. The sink and lavatories should all deliver over an open chamber. For the rest the walls of the house should be built hollow, and protected from rising damp, also by a proper damp-proof course.

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* A Paper read by Mr. Eassie, C.E., of 1, Great Winchester Street, London, before the Edinburgh Meeting of the British Medical Association, Aug. 6th.

Variegated Jacob's Ladder (Polemonium cœruleum variegatum).—In some soils and situations this plant is apt to get rusty-looking, and in hot summer weather ceases to grow. A good way to prevent this is to plant it in its permanent position in April, keeping the roots well down in the cool soil, with which should be incorporated a little fresh cowdung. We treated some thus this year and they have done remarkably well—much better than usual. We propagate it by means of offsets taken off about the end of September, dibbing them in 3 inches apart in light sandy soil in ground Vineries, and keeping them close for a few weeks till rooted. There they remain until spring. If the weather is very severe we protect them with a mat or a little dry litter. Like most hardy plants used for bedding purposes this variety of Polemonium dislikes fire-heat and coddling; simple treatment is best. We find that it associates well with plants having pale blue flowers. We have some forming centres to small circles of Blue King Lobelia resting on a groundwork of Mesembryanthemum variegatum. Thus treated they look well and have been much admired.—H. J. C., *Grimston.*

Budding Trees and Shrubs.—The principal conditions necessary in budding, and worthy of particular attention, are to have the stocks growing rapidly, and the buds to be used plump and fully developed. The Ash sprouts about the fence corners may, according to a correspondent of "Moore's Rural," be budded successfully with White Fringe (Chionanthus virginica). The suckers from Plum trees or wild seedlings should be budded with choice sorts, and removed to the garden next year if desired, or let alone to supply some traveller with a choice morsel. The flowering Almonds, and double flowering Plums and Peaches may also be budded upon these stocks, and beautiful little trees produced in a year or two in this way. Cherry stocks may also be employed, not only for the different kinds desirable for their fruit, but for the double-flowering varieties so much admired for ornamental purposes. Roses may also be budded at this season; in fact, the budding-knife can be employed to advantage upon hundreds of trees and shrubs, and the man or woman who is so fortunate as to have a garden, and not know how to propagate the various kinds of plants by budding, loses many a chance of spending an hour in transforming an inferior plant into a superior one. A book which tells all about this operation, and much more, costs but a trifle, and the information obtained from it, if put to practical use, will be worth much to any family possessing a garden. It is a pleasure to know how to do a thing, even if one never does it.

Weeds as Water Purifiers.—I had recently a striking proof of this. Into my pond runs a stream of 25 gallons per minute of pure water from a drain 12 feet deep which I cut some thirty odd years ago. Weeds will grow and thrive in this pond, and we have annually to rake out large quantities of them. They look very beautiful as they grow in the pellucid water, which is used for household purposes. Said a visitor to me one day, "If you had a pair of swans your pond would be free of weeds;" so a kind friend presented me with a pair, and very soon they cleared the pond, pulling the weeds up by the roots and feeding on them. My family were delighted with the graceful swans and the removal of weedy obstructions to boating; but although the pond was free of weeds, the water was no longer pure and pellucid, but most decidedly muddy in taste, and when the steam issued from the kettle the smell of mud was unmistakable. Well, no one thought it could be the swans, but at last I came to that conclusion, and, despite family and other remonstrances, returned them to their original owners. After a short period the weeds reappeared, and, as they increased in bulk, the water gradually resumed its pellucidity and purity.—J. J. Mechi.

Frogmore Late Pine the Best Strawberry to Resist Wet.—This is also (see p. 108) the very worst variety to resist frost, its flower trusses being thrown up so much above the foliage.—R. Gilbert, *Burghley.*

Duke of Buccleugh and Golden Champion Grapes.—Can any of your readers tell me the difference between the Duke of Buccleugh Grape and the Golden Champion? From what I can see of the Duke, it appears to be a mere variety of the latter.—J. Sheppard, *Woolverstone.*

Statice Bonduelli and spicata.—These pretty Statices grown in 48-sized pots make neat little decorative plants for a drawing-room stand or the greenhouse. They are easily grown and form a pleasing contrast to the plants usually in flower at this season.—E. Hobday, *Ramsey Abbey.*

Lee's Prolific Black Currant.—After three years' culture, I can fully endorse all that has been said in favour of this Currant. Not only is the fruit very large, and the plant prolific, but the flavour is such as will make it a welcome addition to even the choicest dessert.—Ferdinand Gloede, *Eppindorf, Hamburgh.*

Carter's Extra Early Premier Pea.—Dr. Roden tells us that he has found great merit in this new Pea. It came into use after Blue Peter and Bijou (a great advance on Blue Peter). It makes up for lateness by its good qualities. It has a handsome pod, a good flavour, and is 18 inches in height.

Potato Disease.—This continues to spread with alarming rapidity, and I fear that the greater portion of our early sorts are affected. Nothing but the best drying weather can avert the total destruction of our late crops, which have hitherto been most subject to its virulence.—G. Westland, *Witley Court.*

Cooking American Rose Potatoes.—Will some of your readers say what is the best way of cooking the American Rose Potato? Fine large specimens of this variety are brought in by the gardener, but when they appear at table they are uniformly watery and inferior in quality to our other kinds. At what age should they be used?—E. T.

Double-flowered Lobelia pumila.—Grown thickly in pans, this is exceedingly effective as a front row plant for the greenhouse or conservatory. Its small bright blue, rosette-like, flowers when produced freely are strikingly pretty. If the edges of the pans are covered with the drooping Sedum carneum variegatum the effect is charming.—E. Hobday.

Colouring Peaches (see p. 108).—Leaving all the Peaches on the top of the trellis is very well as far as appearance goes; but a practical man always leaves some underneath for succession. I grant that some of the varieties are not so highly painted when shaded as when exposed, but pale Peaches are better than no Peaches at all. If, however, your correspondent plants Dr. Hogg he will have high-coloured fruit underneath as well as on the top.—R. Gilbert.

A Pretty Edging Plant.—In Mr. R. Sims's nursery at Foot's Cray there is a most graceful edging composed of the crisped variety of the Lady Fern, known as the "Garden Parsley Fern." This is a good name for it as it bears a striking resemblance to the true Parsley Fern. It forms an admirable edging to beds of hardy Ferns, and might be used for the same purpose round choice beds or groups of hardy flowers where the soil is suitable.

Double Sneezewort (Ptarmica vulgaris fl. pl.).—Let me recommend all who require large quantities of white cut flowers through the summer to grow this useful herbaceous plant. Its flowers are small, many on a spike, double, and pure white. The plant is hardy and easily cultivated. At Chilwell, it is found to be one of the most useful of cut flowers, and is used largely in bridal bouquets.—N. H. P.

Late Peas.—These have all grown much taller than usual—the great quantity of rain in July having kept them growing instead of filling up their pods as quickly as they would have done with more sunshine. Now, however, they are all yielding abundant crops, and are entirely free from maggots. Champion of England, Champion of Scotland, and Excelsior Marrow are fine varieties, the two last-named being best left untopped. I still find Ne Plus Ultra to be one of the best for the latest crops; it is now growing vigorously, and yields a long succession.—James Groom, *Henham.*

No. 196.] SATURDAY, AUG. 21, 1875. [Vol. VIII.

> "This is an art
> Which does mend nature: change it rather: but
> The Art itself is Nature."—*Shakespeare.*

THE DIFFERENT RACES OF HYDRANGEAS.

At the present time several of the species and varieties of this admirable genus are in bloom in the large temperate-house at Kew, and serve to show what may be effected with them in the hands of a skilful cultivator, not alone in growing fine specimens of existing varieties, but also in raising new ones. It is, perhaps, not generally known that most of the forms in cultivation are varieties of the familiar old Hydrangea Hortensia, and that they originated in Japanese and Chinese gardens, but such appears to be the case. Dr. Maximowicz, who has had opportunities of studying them both in China and Japan, and who introduced some fine varieties into Europe, which have been distributed from the Botanic Garden at St. Petersburgh, holds this view; and, from an examination of living and dried specimens, and a comparison of numerous figures, there seems no reason for doubting its correctness. We call attention to this fact, because it goes to prove that the Hydrangea is probably susceptible of further improvement, and a wider range of variation. So far as we are aware, no attempt has yet been made to raise new varieties in this country, nor, with the exception of the common form for market purposes, have the imported ones received that amount of attention from the cultivator which they merit. The original variety appears to have been introduced towards the end of the last century, though the exact date is uncertain. However, it was figured in the "Botanical Magazine," in 1799, and soon became a general favourite; afterwards falling into neglect, to be again reinstated and largely grown for the market, though not so largely as it deserves to be. The genus consists of between thirty and forty species, natives of the mountains of North India, various parts of China, Japan, and Java, and of America, from Virginia southwards, in the Eastern States, re-appearing again in Western Peru, and extending southwards to Chili. The South American species have thick coriaceous evergreen leaves and no sterile flowers, and, moreover, possess no special attractions. It is the Japanese species that are the most desirable, and, after these, the North Indian, and, lastly, the North American. These are all hardy or greenhouse plants, but some of the latter succeed well in the warmer parts of the kingdom if treated as herbaceous plants, or like some of the hardier kinds of Fuchsia, and cut down in the autumn. In the original variety of H. Hortensia, the one commonly met with in cottage gardens in the south of England, and in several other varieties in cultivation, all flowers of the inflorescence are many times larger than the central ones of some of the wild forms. This is due to the enlargement of the lobes of the calyx at the expense of the suppression of the corolla and sexual organs. Sometimes there may be rudiments of stamens, but they are barren, and, therefore, these flowers are called neutral or sterile. In some varieties only the outer flowers are thus transformed, as in the wild Guelder Rose; the only difference is that in the latter it is the corolla which enlarges. Of course the varieties having all the flowers barren can only be propagated from cuttings, layers, or suckers. Cuttings of the Hydrangeas readily strike root, hence that is the method of propagation generally employed. The lateral shoots strike quickly in heat, and these, with generous culture, will usually bear one enormous corymb of flowers, unless pinched back; cuttings struck in the autumn and kept growing in a warm greenhouse through the winter come into bloom early in spring, and few things are more effective or last longer. A rich free soil, including, if available, a small proportion of peat or, in default thereof, good leaf mould and plenty of silver sand, suits them best; but, in the open ground, some of the varieties, at least, will flourish in any ordinary garden soil. Liberal watering is necessary to ensure large flowers, and perfect drainage is also essential. Of North American species there are only three, but there are likewise several well-marked forms of them. With the exception of H. arborescens, however, they are only suited for the milder parts of the kingdom, as their home is in the States of Carolina, Alabama, Florida, &c. H. arborescens was the first introduced (1734), and reaches as far north as Virginia. It is a shrub 6 to 8 feet high, with greenish-white inconspicuous flowers—a few of the outer ones enlarged and sterile—and possesses no special attractions. H. quercifolia is a handsomer species, whose leaves resemble more those of the Plane (Platanus acerifolia) rather than those of an Oak, though they approach in shape some of the North American Oaks. This is a distinct shrub for the milder parts of the kingdom The plants we have seen growing bore comparatively small panicles of flowers, but dried specimens in the herbarium at Kew have leaves and panicles a foot long. The flowers are white, and the panicle is of narrow pyramidal outline. It was introduced in 1803, but appears to be very rare in collections, though it would contrast well with the Japanese forms, having nearly flat or only slightly rounded clusters of flowers and lanceolate leaves. Another deserving mention is the variety of H, radiata called nivea, from the white down which clothes the underside of the lanceolate leaves. The Indian species may be dismissed in a few words, inasmuch as they are inferior to the Japanese as ornamental plants and scarcely so hardy, with the exception, perhaps, of H. altissima, which is found on the Himalaya Mountains up to an altitude of 10,000 feet. Moreover, they are altogether larger-growing shrubs. H. altissima is a climbing species; H. heteromalla or vestita, introduced in 1821, we have only seen in a dried state. H. cyanema is a very pretty species from the same region, with blue flowers. We now come to the North-east Asiatic, or Chinese and Japanese species, of which there are eight, and a large number of varieties, many of them exceedingly showy and beautiful. They are H. hirta, virens, chinensis, Thunbergii, scandens, paniculata, involucrata, and Hortensia. To the last belong, according to Maximowicz, the following forms:—acuminata (including cœrulescens and roseo-alba), japonica, Belzonii (cœrulea, "Botanical Magazine," t. 4,253), Otaksa, Hortensia, Azisai, and stellata. The extreme forms are so different that no one would think of uniting them under the same species without the connecting links, and it seems most probable that they descend from two distinct species. But this question concerns us less than their value as ornamental plants. The common variety, with immense corymbs of sterile flowers—at first green and then changing to rose or bright blue according to the nature of the soil in which the plant is growing—and large bright green glossy leaves, succeeds near the sea, and even in the shady back courts and yards of town houses. It seems to thrive best in partial shade, though it will grow in open sunny places. Of this form there is a fine variety, the leaves of which are bordered and spotted with white, and the typical variety, having only the outer flowers of the cyme enlarged and sterile. H. stellata is a pretty variety with small leaves and smaller clusters of flowers, with more than four or five narrow sepals in the sterile flowers, and as many as ten to fifteen in a sub-variety, termed prolifera. They are yellowish-green at first, and eventually a bright rose. H. accuminata has also much smaller leaves (2 to 3 inches in length), and some of the outer flowers only enlarged. These are blue in cœrulescens, and red, or red and white, in roseo-alba. Curiously enough, the barren flowers of cœrulescens are reversed, the upper surface being turned downwards. We believe this is also the case in some of the other varieties. H. Otaksa is near the common form, and is said to have invariably intensely blue flowers, without regard to the nature of the soil. H. Hortensia is variable in this respect. In soil highly impregnated with iron it produces blue flowers; and charcoal, alum, iron-filings, and similar materials, are used to procure them artificially. H. Otaksa is as hardy as the common form, and bears clusters of flowers, from 13 to 20 inches across. H. Azisai is also of smaller dimensions, and is remarkable in having its barren flowers extended on long pedicels. H. paniculata is the species next in point of merit as an ornamental shrub. It is a taller growing plant than any of the varieties of H. Hortensia; and quite as hardy, perhaps even hardier. The leaves are clothed with rough hairs, and the flowers are arranged in long pyramidal

panicles. This is described somewhere as one of the best autumn flowering shrubs in cultivation, holding its flowers for two months or longer. There are two varieties; one in which each cyme or branch of the panicle produces a solitary barren flower and several fertile ones; and the other, with larger and more numerous barren flowers. The flowers are white at first, changing to red. This is still rare in English nurseries, but it appears to be more commonly cultivated in the United States. H. virens is an attractive little plant, judging from the dried specimens, and the figure in Siebold and Zuccarini's "Flora Japonica." It has small leaves, pure white flowers, and, conspicuous yellow styles. H. Thunbergii is a small shrub 2 to 3 feet high, small serrated leaves, and flat cymes of blue flowers, a few of the outer ones barren. Messrs. Cripps, of Tunbridge Wells, raised a variety of it, which they call H. Thunbergii floribus persicis—that is bearing flowers the colour of Peach-blossom. It is perfectly hardy, coming from the mountains of Japan; and, although not so showy as some of those noticed above, it is a desirable flowering shrub. The leaves of this species, Siebold states, furnish a very choice kind of tea, having an exceedingly agreeable flavour, and bearing the name of Ama-tsja, or Celestial tea. H. scandens, including H. petiolaris, is of climbing habit; but I have not had an opportunity of seeing it growing.
W. B. Hemsley.

A CHARMING WILD GARDEN.

Mr. Hewittson's garden at Oatlands, near Weybridge, has some features worthy of note for those interested in wild gardening. The new Clematises scramble among the common Ling, grow vigorously, and flower gorgeously. Clematises are also allowed to grow through the branches of huge Oaks that touch the ground. The finer-coloured varieties of our British Heaths are planted among the common kinds, and their effect in flower is excellent. The Gentian-blue Gromwell (Lithospermum prostratum) is thriving perfectly in the free sandy soil of the district, planted out here in wild-looking but carefully-planted masses among the Ling and Brake. In introducing plants of this kind to the wild garden here they are not set out singly and without preparation, but carefully planted by themselves in beds of such naturally irregular outline that when the plants become established they seem native children of the soil as much as the Bracken and Heath around. It is remarkable how all this is done without in the least detracting from the most perfect order and keeping. Closely-shaven glades and wide Grass belts wind about among such objects as those we allude to, while all trees that require special care and attention show by their health and size that they find all they require in Mr. Hewittson's beautiful garden. It is more free from needless or offensive geometrical-twirling, barren expanse of gravelled surface, and all kinds of puerilities —old-fashioned or new-fangled—than any garden we have seen for years.

Woodsia polystichoides Veitchii.—This is a distinct and remarkably graceful Fern for the hardy Fernery or rock-garden. It is not of the "miffy" character of our Woodsias, and is of a slightly silvery tone, which makes it a welcome addition to our other dwarf hardy Ferns.—V.

The Pyramidal Mignonette.—Some of the new varieties of Mignonette are desirable introductions. The best of all for outdoor use is Reseda odorata pyramidalis. It is a great improvement on the old Mignonette.—Hooper & Co., *Covent Garden.*

Double White Pelargonium George Sand.—I have had this variety in fine condition. It has a good habit and flowers freely. Its finely-shaped flower trusses, with long stems, are valuable in bouquets and button-holes, and the individual pips are also good. It is decidedly the best double white Pelargonium yet introduced. It requires a little shading to keep the flowers pure in colour.—E. G. Ottewell, *Penge.*

Transplanting Apricots in Bloom.—Last spring I was obliged to remove an Apricot tree when in full bloom, and it does not seem to have suffered in the least from being moved in that condition. It has even produced a fair proportion of fruit, and has grown with as much vigour as any of the other trees that were not disturbed.—R. Greenfield, *Priory Gardens.*

Grapes Cracking.—I am in the same dilemma as "N. H. P." (see p. 126), except that my Black Hamburghs stand better than any other variety. Of Muscat of Alexandria and Josling's St. Albans, scarcely half a bunch is left. White Tokay and Lady Downs have also cracked. Our Vines, with the exception of Lady Downs are about forty years old, and have got into a sour clay bottom.—Chas Turner, *Eastwood.*

The Fever Gum Tree in Ireland.—A plant of Eucalyptus globulus flowered freely the end of last month in the garden of Mr. R. W. Hall Dare, Newtownbarry House, Wexford. The tree is 20 feet high, and is in a dry and sheltered position; it has been planted out about four years, and is very healthy.—"Gardeners' Record."

NOTES OF THE WEEK.

—— From Alabama we learn that Early Beatrice Peaches ripened for shipment May 28th; Early Rivers and Louise were ready from 1st to 5th of June; Hale's Early and Tillotson's Early, June 10th to 15th. The last-named came in ten days later than in 1871. The day after learning the above interesting news from the Agricultural Department at Washington, Messrs. Rivers sent us from Sawbridgeworth well-flavoured and fairly-grown fruit of Early Beatrice and Early Louise, gathered from standards grown in the open garden.

—— Mr. Truffaut, Versailles, writes to us to say that the weather in France has been quite as bad as with us. For two months it was very cold and rainy, and great difficulty was experienced in the culture of fine-foliaged and tropical plants indoors in consequence of the absence of sun and natural heat. Out-of-doors, an immense quantity of fruit rotted on the trees.

—— Mr. G. F. Wilson, of Weybridge Heath, sends us specimens of that magnificent variety of the Tiger Lily, known as Lilium tigrinum splendens, which is by far the best of its race, and is at once distinguished by the greater size of both the flowers and their spots from all others that belong to the tigrinum section. It is one of the most precious hardy bulbs ever introduced to our gardens.

—— We are authorised to state that the exhibition announced to be held in the Botanical Gardens, Manchester, on the 2nd of September next is postponed.

—— The Victoria Lily is now flowering freely in the new aquatic house at Kew, the old aquarium being now devoted to the smaller-growing Nymphæas, many of which are also in bloom, associated with the Nelumbium speciosum, or Sacred Bean.

—— For the last few weeks there has been a considerable scarcity of good fruit in the London market. This sometimes happens between the small fruit season and the coming-in of the good early Pears and Apples. This year, in consequence of the injury done by wet to the small fruits, the want has been rather unpleasantly felt.

—— As an example of what may be done with flowers in the heart of dustiest London we may mention the graveyard of St. Sepulchre's, Holborn Viaduct. It is now a pleasant little garden, well furnished with numerous bright flowers, and among them Japan Lilies and other subjects only seen in tasteful gardens.

—— In the grounds of the New Plant and Bulb Company, at Colchester, there are now remarkably fine plants of Lilium longiflorum eximium, a superb variety of very vigorous growth, the plants attaining a height of 3 feet out of doors, and bearing from five to eight of their large trumpet-shaped flowers. It is a much finer plant than that lately alluded to as being sold in Covent Garden, under the same name, and which is evidently only L. longiflorum.

—— Some of the fine trees in the gardens belonging to Northumberland House, now down, are being felled to make way for contemplated improvements. Where thousands of pounds are being spent in planting young trees in towns it is to be regretted that more care is not taken to preserve established specimens of them. If the trees in question were wrongly placed, it might not have been an impossible matter to have removed them to more eligible positions.

—— A good example of railway gardening may now be seen at the Lower Norwood Station. The walks on both sides of the platform are fringed with rock borders, and carpeted with Saxafrages, Sedums, and other low-growing green-leaved vegetation, a few bedding plants being used here and there, in order to give colour. On one side is a really good piece of carpet-bedding, consisting of a six-rayed star of Coleus on a flat mass of the Golden Pyrethrum, the whole being neatly edged with Blue Lobelia.

—— Among plants now in bloom on the rock-work at Kew are the following, viz., Diuris elongata, a pretty little Australian terrestrial Orchid, having grassy leaves and terminal white rose-spotted flowers, borne on leafy stems, from 6 to 8 inches in height; Polygonum capitatum, a quick-growing and free-flowering half-hardy species, having creeping stems, ovate, dark, blotched leaves, and pale-rosy flowers; Asteriscus maritimus, a vigorous-habited Composite, bearing bright golden-rayed flowers, as large or larger than a penny piece; and Gaultheria procumbens, studded with its wax-like pearly-tinted bell-shaped flowers.

—— Among plants now in flower in the lobby of the Orchid-house at Kew are the showy old-fashioned Hæmanthus coccineus; Campanula Vidalii, a pretty shrubby white-flowered Bell-flower; Oxalis Smithii, a free-flowering bright rosy species, with elegantly six-lobed leaves; Gastronema sanguineum, a showy scarlet-flowered Amaryllidaceous plant, somewhat resembling a Vallota, but with a more bell-shaped flower; Amphicome Emodi, with pinnate Burnet-like foliage, and rosy-lilac funnel-shaped flowers; Astelma eximium, an interesting Composite, the stems of which are clothed with closely imbricated woolly foliage, and surmounted by a cluster of Helichrysum-like everlasting flowers of a reddish colour.

THE FLOWER GARDEN.

NOTES ON NEW AND RARE YUCCAS.

All who grow Yuccas will thank Mr. Hemsley for his paper on them, published in The Garden of last week (see p. 129). It is not, and it does not profess to be, an exhaustive scientific account of the family, but it is one which will be very useful and popular. Those who wish for more strictly botanical accounts will find them in the papers by Mr. Baker, Dr. Engelman, and Mr. Wilson Saunders. I have ventured to supplement Mr. Hemsley's paper by a few stray notes. To the two variegated Yuccas named (aloifolia var. and filamentosa var.) should be added gloriosa var. At present this is very scarce, and, I believe, not in private hands. I only know of it at Kew, at the Jardin des Plantes at Paris, and at M. Van Houtte's. It is a grand plant, and I hope it may soon be more widely distributed. Yucca aloifolia can only be considered hardy in Devonshire, South Wales, and such parts, and even in those districts it must be protected from wind and snow. Y. Treculeana, I fear, is very tender, but it is a magnificent species. I saw it last year, just after flowering, at the garden of M. Leroy, at Angers, and I considered it the king of Yuccas. Y. flaccida increases fast, and is one of the best where only a few are grown, as it generally flowers every year. There is a very good variety of this (as I suppose it to be), that I had some years ago from M. Van Houtte, under the name of Y. Meldensis. When in flower it is very distinct, as the branchlets of the panicle are set almost at right angles with the main stem, and the flowers are a good white. I know nothing of its origin. Of Y. angustifolia I fancy there are two or three varieties, and my experience is that they are not easy to establish, but when once established they are as hardy as any. Y. angustifolia is rather scarce. I have never seen its flower; but Mr. M'Nab reports it as now in bloom at the Edinburgh Botanic Gardens. There is a species or variety very like this called Y. alba spica, which Mr. Hemsley does not mention. Its leaves are very rigid, and the margins are very thready. It is at present scarce. I do not question that Y. gloriosa var. superba is only a variety of gloriosa; but, when well grown and the season is favourable, it is so distinct as to merit a special notice. Dean Herbert said of it "that it is unquestionably the most magnificent plant in the flower garden." The name Y. Ellacombei seems to be now established, but the plant was raised by Messrs. Loddiges (not by my father) from seeds that came from Malta. It is a distinct and very handsome plant, the colours being very fine. Dr. Engelmann connects it with Y. recurvifolia, but the leaves are not recurved. The peculiar twist in the leaves reminds me of the description of Y. tortulata, but I know little of that species. Among the curiosities of Yuccas may be noticed one called "Joshua" by the Mormons (Y. brevifolia). Dr. Parry describes it as having an odour "decidedly fœtid, seeming to present special attractions only to various beetles and insect larvæ." A second curious point is, that the Yuccas are night-blowing plants, so that the flowers are generally seen by us either before or after expansion. This is specially noticed by Dr. Engelmann as connected with fertilisation by night-moths. A third point worth notice is, that though the family is markedly a fibre-bearing family, yet hitherto it has not been found of much commercial value, though it has been experimentally used for the manufacture of both cords and paper.

Bitton Vicarage. Henry N. Ellacombe.

Acanthus spinosus in flower.

ACANTHUSES IN BLOOM.

These are beginning to get a well-deserved place in our borders, and also occasionally in the sub-tropical garden. It, however, takes some time to get them thoroughly established, and hence we do not as yet often see them at their best. The large dark-leaved one, called A. latifolius, requires considerable time and good deep, rich soil before it attains its full size; it is then very effective. In some heavy cold clay soils these do not appear to flower freely. In our warm open soils they bloom freely enough, and their flowers have a very distinct appearance from any others, and, to my mind, much quiet beauty. By the way, is it not said that the firmly but delicately-chiselled beauty of the flowers and their surroundings led the Greek sculptors to adopt them as the original model of the celebrated Corinthian capital? Acanthus longifolius, A. latifolius, and A. spinosus, are all kinds that flower well with me in good sandy loam, and which are much admired by all who see them. Y.

The American Weed in Ornamental Waters.—Four years ago, under the advice of an eminent landscape gardener, I excavated a basin or pond to retain a water-course which passes through my garden, in order to create a sheet of water intended to be ornamental. My design, both before and after execution, looked well, but has been productive of a series of annoyances. First the sewer came in, next the water ran out. The remedies applied to these evils have been very costly, and, as yet, are by no means successful. But in addition to these—and this is the point upon which I wish to consult you—that pest the Anacharis Alsinastrum, introduced, as I believe, with some Water Lilies purchased from a neighbouring nurseryman, has made its appearance, and, in a few weeks, has taken possession of my pond. How can I eradicate or arrest it? That is the important question. I know there are many others suffering from the same evil, some of whom will perhaps give me their experience. Some have suggested the introduction of swans; others the application of a mixture of limewater. I have an idea of drawing off the water to a minimum sufficient to float the weed, and then to saturate it with carbolic acid, which I hope may effect its destruction.—Amphibious.

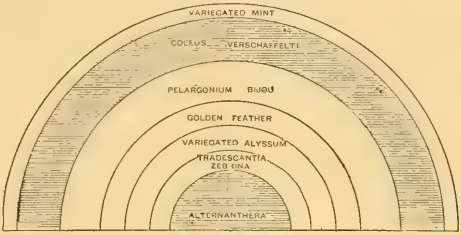
A Bright Yellow Muscari.—When visiting Mr. Ellacombe and Mr. Atkins this spring, I saw, in each garden, a single bulb of a very showy and handsome Muscari in full bloom. The bells of the flower-stalk were nearly double the size of those of M. moschatum, and of a clear, bright yellow. I believe Mr. Bohn, to whom a flower was sent, pronounced it to be M. moschatum var. maritimum (luteum). I have several times ordered this variety from the Continental nurserymen, but it has always turned out to be the ordinary M. moschatum. Mr. Ellacombe and Mr. Atkins had only a single bulb each, and the latter told me that he had in vain tried to procure more. Whatever the plant is, it is a most striking and handsome species, and one which ought to be largely grown in every garden. Why do not our nurserymen look it up?—H. Harpur Crewe, *The Rectory, Drayton-Beauchamp, Tring.*

Gentian Culture.—Gentiana verna thrives well in Oxfordshire in a sandy border, with a few large stones half-buried about it, and G. acaulis we use for edging purposes. G. Andrewsii is a fine kind, with large deep blue flowers in clusters, which never quite open; it grows in company with a Gentian sent to me as G. gelida, but I think it is wrongly named. G. asclepiadea and the white variety grow very freely in a half-shady border (facing the north), with a fair proportion of peat in it.—Oxon.

RAISING NEW PELARGONIUMS.

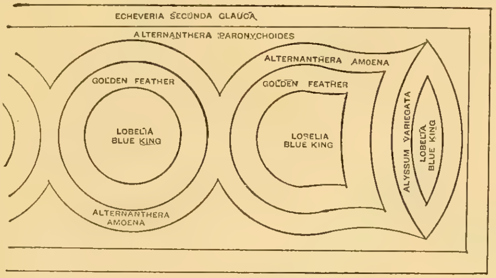
Pelargoniums form an extensive family, which is of considerable importance from a decorative point of view. It is divided into several sections, among the most conspicuous or important of which are those known as the "zonal," the "show," and the "fancy" varieties. It is generally admitted, however, that these terms do not satisfactorily designate the class of plants to which they are respectively applied. And yet there appears to be some difficulty in assigning other and more comprehensive terms which would be likely to be recognised and adopted. The zonal varieties are supposed to be descended from two or more of the Cape species, viz., P. zonale, P. inquinans, and P. Fothergillii; while the show and the fancy sorts are probably derived from P. grandiflorum, P. cuculatum, or other large-flowered species. Considerable uncertainty, however, exists as to the origin of these plants. The practice, still continued, of applying the term Geranium to this genus is somewhat inexplicable, as, putting botanical distinctions aside, the general appearance of the two classes of plants is essentially distinct. The Pelargoniums are nearly, if not all, tender, being mostly natives of the Cape of Good Hope; while most, if not all of the Geraniums are indigenous to Europe, some of them even natives of Britain, and, consequently, hardy. Not less inexplicable is the notion entertained by some that the name Pelargonium should be applied to the zonal section, and that of Geranium to the other sections, known as the "show," the "fancy," and the "sweet-scented" varieties. It is true that the numerous varieties forming the zonal section differ very materially from what are called the "show" and "fancy" sorts. But even the structural resemblance which these sections bear to each other is certainly much greater than any of them bear to the Geranium properly so called, such as G. pratense, G. platypetalum, &c.; and this circumstance alone might be supposed to be sufficient reason for applying the name of Pelargoniums to all sections, if it is applied to any of them. The term zonal is sometimes objected to, when applied to plants whose leaves show no indication of a zone; but the zoneless varieties may, I think, continue to be considered zonals—as, in all other respects, they agree with them,—until some more applicable and comprehensive term can be applied to the zonal, as well as to the various other sections of this genus. Cross-bred and hybrid are often thought to be synonymous terms, and are frequently applied indiscriminately. This, however, I am inclined to think, should not be the case. Nature appears to favour or promote the production of cross-bred varieties, inasmuch as every hermaphrodite flower generally possesses male and female organs, and yet the stigmas of such flowers are rarely fertilised by their own pollen, as, in most cases, this is ripe and dispersed before the stigma of such bloom is in a sufficiently forward condition to be fertilised by it; while, in other species, the stigma is frequently fertilised by foreign pollen before its own is ripe. As an instance of the way in which flowers in general are fertilised by other pollen than their own, I may mention the case of a bloom of a double Zinnia, of somewhat extraordinary dimensions and of peculiar colour, which was produced in a bed among many other double-flowered Zinnias of various shades of colour. The plant which produced the bloom to which I am alluding had all its other flower-buds removed before they expanded, and this single bloom was allowed to mature its seed which was carefully sown this spring, and the plants produced by it (some three dozen or more) were planted in a bed, and are now in flower, producing blooms of all shades of colour, including white, yellow-bronze, purple, &c., but no plant among them has flowers of the same shade as that of the bloom which produced the seed from which they were raised. Therefore, as has already been said, Nature, by insect agency or otherwise, but without the intervention of man, facilitates the production of cross-bred varieties, while, on the other hand, she discourages hybridity, however accomplished, by invariably placing such productions under the ban of sterility. Zonal Pelargoniums, now more particularly under consideration, are, with good reason, believed to be descended from two or more species, say, zonale and inquinans, and, in this instance, sterility has not been induced. A variety, which has recently originated in a garden at Nice, and which M. Jean Sisley, of Lyons, considers to be a hybrid between a zonal and some Ivy-leaved species, produces, nevertheless, fertile seeds; it is, therefore, quite possible that some plants which, according to botanical arrangements, have been separated and considered to be distinct species, may, nevertheless, be more properly regarded as mere varieties. All the plants, however, which I have raised between the modern zonal varieties and Pelargonium peltatum, have invariably proved sterile; nor have I ever succeeded in inducing the hybrid plants, raised by Mr. Wills, to produce seed. These, by the bye, I am very much inclined to think, have also been produced between P. peltatum and some of the zonal sorts; and, if this be so, no hybrids, as far as I know, have, up to the present, been obtained between P. lateripes and the zonals; for, according to Loudon's "Hortus Britannicus," the former kind and P. peltatum are considered to be distinct species. If therefore, very considerable difficulty is experienced in obtaining a cross between allied plants of kindred species, it may well be supposed that this difficulty will be greatly intensified when attempts are made to produce hybrid plants between distinct genera; yet this, Mr. Lowe, of Highfield House, near Nottingham, considers he has accomplished. He has, he thinks, produced a variety between Madame Vaucher, a white-flowered zonal, and the hardy blue-flowered British plant, Geranium pratense. This may, of course, be so; indeed, Mr. Pearson—an authority, as may be supposed, on such matters—admits himself to be nearly, if not altogether, convinced that such is the case. All attempts, however, made by me in that direction have hitherto failed. During the early part of the present season I potted several plants of G. pratense, G. platypetalum, and G. anemonifolium, and placed them in situations in which it was hardly possible that kindred pollen of any kind could reach them, otherwise than by my own hand. The blooms were duly emasculated, and zonal pollen carefully applied; and, in due time, what appeared to be seeds were freely produced. But these, on close examination, were found to be merely empty seed vessels. They were, however, sown, in order that no chance should be thrown away; but, as was expected, no plants were the result. This experiment was also reversed—that is, Geranium pollen was used for fecundating blooms of the zonal Pelargoniums, the result of which has yet to be ascertained; but sanguine hopes are not entertained of its success.

Dr. Denny, of Stoke Newington, a successful raiser of improved zonal Pelargoniums, attaches much importance to the influence or potency of the pollen parent in producing the desired qualities in colour, form of flower, habit, constitution, &c., of the progeny. But, in order to ensure this prepotency of the pollen plant, he thinks it necessay to use the pollen somewhat lavishly; in fact, to saturate or smother the stigma of the intended seed-bearing plant with pollen grains. My own experience in the matter has not led me to observe the superior influence of the pollen parent, and I should think one parent as likely to be prepotent as the other; or, if anything, I would rather be inclined to say that, as regards constitution, the seed-bearing plant has most power. My experiments, however, have generally been directed more towards the production of certain qualities in foliage than in flower, and whenever variegated plants have been allowed to become the seed bearers the progeny has generally been found to be weak or delicate in constitution, although the pollen used may have been furnished by the strongest-growing green-leaved varieties. I may state, too, that I never succeeded in raising a robust or free-growing tricolor Pelargonium from seed which had been produced by a variegated plant. On the contrary, I have always found that in cases where the seed-bearing plant was variegated, and the pollen plant green-leaved, there was a greater percentage of variegated seedlings among the progeny than in cases in which this order was reversed, that is, the seed-plant green-leaved, and the pollen plant variegated, and the latter will always be found to furnish the strongest and finest varieties. If a union is effected between two varieties of corresponding vigour of constitution, the transmission of qualities from each parent will generally be found to be pretty much the same. Some years ago I fertilised a few blooms of the well-known white-flowered zonal Madame Vaucher, with pollen taken from a strong-growing variety with a well-defined zone, and large trusses of dark scarlet flowers, named Emperor of the French; from the result of this union was selected a variety which has been long known as a good bedding sort, viz., Culford Rose—a strong vigorous variety, with large trusses of rose or cerise-coloured flowers. In this instance it will be observed that the pollen parent was prepotent in the matter of colour, but it must also be remembered that in this batch of seedlings there were also plants with lighter-coloured flowers, as well as some of darker shades. But, in no instance was a plant produced having blooms of as dark a scarlet as the pollen parent, nor so light-coloured as that of the seed parent. During the following season pollen from this Culford Rose was applied again to Madame Vaucher, and one of the results was a very dark zoned variety, with well-formed pink flowers, which was named Culford Pink; this proved to be an excellent bedding sort, with possibly the darkest zone of any zonal Pelargonium. About this time a series of papers on bedding Pelargoniums appeared in the "Gardeners' Magazine." In one of these it was stated that a good pink-flowered variety, with very darkly-zoned foliage, was something very much to be desired; and it was facetiously added, that whoever would furnish such a desideratum would deserve well of his country, or words to that effect. This variety, in all respects, fulfilled the conditions asked for. Pollen of it was also applied to Madame Vaucher, and the result was a batch of very light pink-flowered plants. The experiment was still farther carried out, and it was found that in about the fifth or sixth generation plants with flowers nearly, if not altogether, as white as those of Madame Vaucher, were produced.



Semi-circular ribbon bed.

From what I saw of Mr. Lowe's so-called hybrid variety I felt inclined to think that, like the French variety alluded to by M. Jean Sisley, it would produce seed pretty freely, and, if this be so, it by no means indicates hybrid origin. About the middle of last September I repeated an experiment which I had previously tried, with the view of ascertaining whether or not superfetation could be induced in the case of the Pelargonium, and, if so, it might of course be inferred that the same might take place amongst other hermaphrodite plants; or, at all events to ascertain for the second time whether or not the application of foreign pollen to the stigmas would have any perceptible effect upon the progeny in cases in which such stigmas had been previously fertilised by their own pollen; accordingly two plants of Pelargonium peltatum were again selected and placed in a structure where it was hardly possible that pollen from kindred species could by any means reach them, and, as soon as the stigmas were found to be in proper condition, a few blooms upon each plant were fertilised with their own pollen, and all other blooms were removed. On the following day the stigmas of one of the plants were covered with pollen taken from a zonal variety. The blooms upon the other plant were left untouched after the application of their own pollen. Both plants duly ripened seed, and the produce of each was sown in a separate pot, and germinated simultaneously; but, as was expected, the produce of the plant whose blooms had the second application of pollen were exceedingly diversified in aspect, although they all appeared to be of the peltatum type, the leaves of some of them were large, others exceedingly small; some had zoned foliage, the leaves of others were quite zoneless; while the plants raised from the seeds produced by the blooms which had received only one application of pollen were quite uniform in appearance. All the plants, however, were kept growing slowly throughout the winter months, and were planted in the open air about the end of May. All the seedlings raised from the plant whose blooms received only one application of pollen have now flowered, and their blossoms differ in no respect from those of the parent plant; while, as regards the produce of the twice fertilised plant, none of the seedlings have yet flowered, and—what is more remarkable—the plants are rapidly losing that diversity of appearance which distinguished them during the earlier stages of their development, although they are still very distinct from each other, and the appearance of flowers is looked forward to with interest. Should they approximate to the zonal type, this circumstance may perhaps be considered as favourable to the theory of superfetation; while, should the flowers be in no degree different from those of P. peltatum, it will be difficult to account for the diversity of appearance among the seedlings apparently occasioned by the second application of pollen, otherwise than by supposing that, even after fertilisation has been effected, the ovules may still, to some extent, be nourished or fed by the application of pollen to the stigma. P. Grieve.



Panelled carpet beds.

CARPET BEDDING IN LONDON GARDENS.

Our summer this year has been too wet and cold for bedding and sub-tropical plants, more especially for such kinds as produce flowers, and yet herbaceous plants in mixed borders have rarely been more attractive than they have been during this summer. The most remarkable features of our public gardens just now is, however, undoubtedly the carpet beds, which, though less bright in colour than they were last year, have not, at least, been much affected by the heavy rains to which they were subjected all through July and early in the present month, and, apart from the meaningless and complicated designs in which these bright-coloured low-growing foliage plants are too often arranged, they are highly useful as affording permanent, rich, and decided colours, which can be depended on even when flowering plants fail us. We have now three styles of bedding, and these, although distinct in themselves, may frequently be effectively combined in one and the same garden, as may be seen this year in Battersea and Victoria Parks. In the so-called "carpet bedding," dwarf-growing foliage plants, such as Alternantheras, Echeverias, Golden Pyrethrum, Cerastium, and Golden Chickweed alone are used, with now and then the addition of some dwarf-growing Lobelia. In ordinary bedding arrangements, Pelargoniums, Calceolarias, Verbenas, and such strong-growing foliage plants as Centaurea and Coleus are employed, while in sub-tropical gardening, as is well known, we use any noble-habited tropical or other fine-leaved plants, such as Aralias, Palms, Ferns, or Grasses, provided they are sufficiently hardy to stand out of doors during the summer months. Carpet bedding is a comparatively modern system of flower gardening, and is useful in the way of affording neat belts, bands, panels, or clumps of bright colour on highly kept or closely shaven lawns. Its beauty depends on brightness of colour and skilful design; that of sub-tropical gardening on elegance and stateliness of form; hence, by a judicious combination of the two, excellent results may be produced. Neatness is secured by pegging down, clipping, and pinching, until the whole bed is nearly as flat and as formal as a veritable carpet or, rather, hearth-rug. We have, in fact, left off clipping our Yews and other evergreens into all manner of fantastic devices only to torture our dwarf bedding plants in a somewhat similar manner. This kind of bedding is, however, now the fashion, and that being so, we have thought it well to furnish a few illustrations as to the best way of carrying it out. Examples of carpet beds may now be seen in all our London parks, those in Battersea, Hyde, and Victoria Parks being, perhaps, the best. Independently of design, however, the materials with which they are planted demand consideration, and, therefore, we cannot perhaps do better now than give a synopsis of the plants employed in this kind of gardening, which is likely to extend to country gardens; such a list will be useful for future reference.

WHITE.

*Cerastium tomentosum
Antennaria tomentosa
Gnaphalium lanatum
*Leucophyta Brownii
Centaurea ragusina
Centaurea ragusina compacta
Cineraria maritima compacta
Euonymus radicans variegatus
Euonymus latifolius albo-marginatus
Fuchsia gracilis variegata
Veronica Andersonii variegata
Salvia argentea
Stachys lanata

ORANGE-RED.

*Alternanthera paronychioides
Alternanthera parouychioides major
Alternanthera amabilis
Alternanthera amabilis latifolia

BLUE.

Lobelia Blue Stone
Lobelia pumila
Lobelia pumila grandiflora
Lobelia pumila magnifica
Lobelia Blue King

ROSY-PURPLE.

Lobelia Omen

YELLOW.

*Pyrethrum Golden Feather
Mesembryanthemum cordifolium variegatum
*Stellaria graminea aurea
Pelargonium Robert Fish
Pelargonium Crystal Palace Gem

YELLOW.

Pelargonium brilliantissimum
Viola, yellow flowered
Coprosma Baueriana variegata
Euonymus japonicus aureus
Lamium purpureum aureum
*Sedum acre aureum
*Sedum anglicum

BLUISH-GREEN OR GLAUCOUS.

Sedum glaucum
Echeveria secunda
Echeveria secunda glauca
Echeveria metallica glauca
Sempervivum cuneatum
Gazania splendens variegata

GREEN.

*Tagetes signata pumila
*Cerastium arvense
Sedum lydium
Pyrethrum Tchiacthewii
Sedum acre

CRIMSON AND CARMINE.

*Coleus Verschaffelti
Coleus Verschaffelti (improved)
Iresine Lindenii
Iresine Herbstii
Iresine acuminata
*Alternanthera amœna
Alternanthera amœna spectabilis
Alternanthera amœna magnifica
Alternanthera spathulata
Amarantus rubra

BLACKISH-CRIMSON.

Coleus (dark-leaved varieties)
Perilla

(Those marked * bear clipping or pinching well.)

Pruning and Manuring Clematises and Conifers.—I should be much obliged by your telling me if I ought to cut my Clematis Jackmani down in winter; it grows well and seems healthy, but never blooms until September. I want to cover a trellis with Clematises, and I should like to know what varieties of Clematis will look well associated with Jackmani, and last all the autumn as Jackmani does when properly treated? Will manure put to the roots of Yews in winter increase their growth or will it injure them? Will manure also benefit Cupressus Lawsoniana?—Kate Brook, *Crawshaw Hall, Rawtenstall, Lancashire.* [Clematis Mrs. Jas. Bateman will contrast well with Jackmani. Cut them both down to within a foot of the ground and in November dig in a liberal supply of well-rotted stable manure. Yews and the Lawson Cypress will also be improved by having well-rotted manure applied to their roots in November.—G. Jackman & Son, *Woking.*]

The Best Phloxes.—The following are the best now in bloom in Mr. Laing's collection at Stanstead Park, viz., A. F. Barron, lilac with a large crimson eye; Bryan Wynne, deep crimson, suffused with purple, centre bright crimson; Dr. Masters, rosy-pink with bright crimson centre, flowers large and fine in form; J. K. Lord, salmon-red with large carmine eye, fine both in form and spike; Lothair, light scarlet shaded with purplish-violet, distinct; Madame Domage, white slightly marked with purple, large and fine; Madame la Comtesse de Turenne, pure white, with a purple centre; Madame Moisset, violet, centre brilliant scarlet; Miss Macrae, pure white, with a dark purplish-crimson eye; Monsieur Joseph Heim, salmon red with rich purple-centre; M. Marin Saison, red, salmon-violet, dwarf and very fine, extra; M. Taillard, salmon-red, centre purple-bronzed; Mrs. Dombrain, white, with a well-defined eye of bright crimson; Philippa Penglase, purplish-lilac with a glowing pink centre, effective; Princess of Wales, white shaded with rose, large bright scarlet-crimson eye, fine form, and in spike; Retour de la Fortune, clear lilac, white in the centre; Souvenir de Berryer, dark rosy-salmon, with a purple centre; and White Lady, a distinct pure white variety.—F.

Transplanting Clematises.—My Clematis beds, consisting of Jackmani and rubella, are most effective. They are small circular beds, in which the Clematises are tied to Willow sticks hooped over about 3 feet above the beds in the shape of common bee-hives. My garden is, however, to be somewhat changed next year, and I am anxious to know if the Clematises are carefully lifted in November I can depend upon their blooming well the first year in their new quarters. They would, of course, be immediately replanted in rich, deep beds; but, if I thought they would suffer from transplantation, I would even prefer to allow them to remain where they are. They have been undisturbed in their present quarters for the last five or six years. — J. Thomas, *Carlow.* [Prune back the Clematises in November to within 6 or 9 inches of the base or surface of the ground, transplant them, in that month, with good balls into some rich, rotten, stable manure well mixed with mould, and mulch the surface during the winter months. They will then flower freely during the forthcoming season.—Geo. Jackman.]

A Weeding Lesson.—We have often spoken of the importance of killing weeds before they come up, or before they have reached a a tenth of an inch in height. It is then done with the single stroke of a steel rake or hoe. A bed of flowers, containing 80 square feet, should be raked once a week, whether the weeds appear or not. It requires four minutes for each raking; and for the entire months of May, June, and July, forty-eight minutes. This leaves the bed at all times perfectly clean and mellow. If the ground is full of foul seeds, they will come up in warm, moist, growing weather in one week, and once or twice their green points had just appeared when the weekly raking was given. In another bed of equal size, where raking was omitted, they came up in a week, and in two more weeks were from 3 to 6 inches high—requiring one hour to clear all out by hoe and hand. This must be repeated every three weeks, or four times in the three months, requiring half a day's work to keep the weeds under for the three months, and even then doing it imperfectly.—"Cultivator."

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Struthiopteris japonica.—This is a noble hardy Fern quite distinct in appearance from anything else we have. Mr. Sim, of Foot's Cray, informs us that it is quite hardy in any soil, having wintered safely with him in frozen water.

Marechal Niel Rose upon Briar Stocks.—This charming Rose has the fault of flowering but sparingly when the stock upon which it is grafted is not very vigorous. The best stocks for it are young Briars, upon which it flowers profusely.—W.

Phlox Countess of Sefton.—I saw a most effective bed of this the other day in the Botanic Garden, Birmingham. It belongs to the suffruticose section, is a free bloomer, and has a dense compact habit. When seen in good sized masses, within a purple band, it is most effective.—Geo. Westland, *Witley Court.*

Campanula persicifolia coronata cœrulea.—Amongst Bell-flowers this is my favourite. The effect produced by the harmonious dash of light green on the outer segments of the individual flowers is unsurpassable; whilst the stately and free growth of the plant in general, makes it, as a whole, one of the most striking of herbaceous plants.—R. P. B.

Rats and Water Plants.—Whenever I have planted a strange aquatic in my pools, the water rats attacked and devoured it immediately—often before our eyes—a few minutes after it was planted. They have carried off Hemp Agrimony (a very fine plant), Butomus, the large Reed-Mace, &c., year after year. Can it be a taste for novelty? Some of my friends have observed the same.—Jackson Gillbanks.

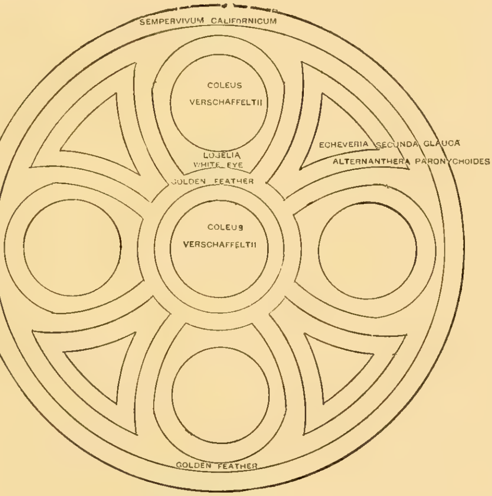
Ferula tingitana.—Your figure of this Ferula (see p. 111) conveys but an indifferent idea of the beauty of the plant. It is a splendid plant when grown in the open border, but it does not usually bloom in so small a state as is represented by the figure which you have given of it. It requires four or five years before it produces flower-stalks, which grow as high as 12 or 15 feet. I have a plant of it which was sent to me about ten years ago by the late Mr. John Salter; but I have had it only once in bloom. It has withstood all our severe winters.—Jean Sisley, *Lyons.*

Gathering Alpine Flowers.—I propose spending a few weeks in the Engadine. Can you give me the name of a handy, trustworthy, and intelligible work on the flora of the district.—Salmoniceps. [There is no published flora of the Engadine. Ball's Guide gives botanical information. Pontresina is the best centre, being close to Pitz Langard, Roseg Glacier, &c. "Salmoniceps" should also go up to the Bennina Pass and stop there several days; there is a good hotel. Also at the Albula (Weissenstein Hotel, 6,500 feet above the sea). Primulas are plentiful at Pontresina. At the south end of the village there is a man who collects and sells dried specimens of Engadine plants, and who will give information about localities.—G. Maw, *Benthall Hall.*]

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Propagating Bedding Plants.—It is now time to commence the propagation of bedding plants for another year, especially some varieties of Pelargoniums, such as the tricolors, the cuttings of which, if they are not got in early, do not root well; if put in at once, in the open air, they are far less liable to fail than when confined in frames or houses; but, as in the course of some weeks, we may expect cold nights, it is well to provide against their effects. The best means of doing this is to prepare a number of propagating-boxes or large cutting-pans, according to the number of plants which will be required; these must be well drained, and for this purpose there is nothing better than coal cinders, as they are dry and open, and not so heavy as crocks or broken bricks. The cinders, to the depth of an inch, should be placed in the bottom of the boxes, a little dry rotten manure, such as has been used for mulching a Vine border or Asparagus bed, being laid on the top. On this put the soil, which may be any ordinary loam, in which there is a fair proportion of sand. The boxes should be deep enough to take, above the drainage, 2½ or 3 inches of soil, which should be pressed moderately firm. The cuttings should consist of shoots taken off with four or five joints, a clean incision being made just below the bottom joint. All the lower leaves must be removed, leaving only two or three at the top. In making cuttings of all kinds, but especially of those that are soft and fleshy, such as the plants under consideration, a sharp knife is always absolutely necessary, in order that the part cut may not be crushed or bruised, in which case cuttings are much more likely to rot than root. After they are prepared let them lie for a few hours, so that the wound may dry a little, and then insert them 3 inches apart. See that the soil is not too wet, and do not give any water for a day or two. Place the boxes containing them in the full sun, in a warm corner of the garden or frame-ground, and, before danger is apprehended from cold nights, have in readiness a frame to put over them that can be all or partially closed when required. Unless a sufficient number of Verbenas were put in store pots in spring to provide stock for next year, cuttings of these should at once be put in. Select such as spring from the base of the plant and are free in growth without showing any disposition to flower. Let them be two or three joints in length. Prepare a sufficient number of 6-inch pots, well drained, and filled with sandy loam; put ten or a dozen cuttings in each, give them a good watering, and place them in a cold frame, the atmosphere of which must be kept moist, giving only a little air in the middle of the day, and shading to keep them from flagging; damp them with the syringe every afternoon when the weather is sunny, and be careful to remove any leaves that turn mouldy. Here they will root in a few weeks, after which more air must be given them. In preparing cuttings of any description that have to be struck in a close atmosphere one thing is essential to success, and that is never to bruise any part; if even a leaf is at all crushed, far better cut it clean off than allow it to remain, as a bruised stem or leaf is always liable to damp.



Circular carpet bed (see p. 149).

Apples.—In gathering, for immediate use, early kitchen Apples, such as Keswick Codlin, Lord Suffield, or Manks Codlin, a little discrimination should be used in getting the first from trees that are heavily laden. If a portion is removed from those that are over-cropped, it not only gives the fruit a better chance of attaining a useful size, but also relieves the trees for another year. Where forethought is exercised in this way, amateurs' trees that are usually limited in number never need suffer by over-cropping, for which there may be some excuse where large orchards exist. This also applies to Plum trees, which, this year, in the south of England, are generally so over-laden as to prevent their setting more than a very small quantity of bloom, a scanty yield the ensuing summer being the inevitable result.

Celery.—The particular time at which Celery is wanted for use, in the autumn, should regulate the period at which it should be earthed up, for it is not advisable to do this fully, thus early in the season, unless it is required for use as soon as blanched; for, when the earthing-up process is completed, it does not afterwards keep so well. There are many who do not value this vegetable whilst summer Lettuces can be had; consequently, where this is the case, it is better not to draw more earth to the rows than is necessary to keep the leaves in an upright position and prevent them from being broken down by the wind. Crops intended for use as soon as they are large enough for the purposes for which they are required should be gone over at once; a few of the small outside leaves and all suckers should be removed, and the whole of the remaining leaves should then be brought together in the hand and tied loosely with a ligature of bast high up the stalks—in fact, just beneath the leaves; if the tie is not slack it does not allow the centre leaves, that are now pushing up, room to grow, in which case they become deformed and spoilt. Hand-pick all weeds that are growing in the trench, give a good soaking with manure-water, and then apply 6 inches of fine soil to it; draw the stalks tightly together with one hand, whilst with the other the earth is placed close up to the plants. If this is not done the soil gets into the hearts, causing decay; in the course of a fortnight add another 6 inches, carrying out the work as above described; and, after the lapse of a similar period, finish off with 6 inches more, leaving the sides of the ridge sloping and smoothed with the back of the spade so as to throw off wet. It is not good practice, except in the case of the general winter crop, to finish the earthing up of more Celery than will serve for a month or so, for if much is earthed up early in the autumn in a dry season, it suffers from want of water, for, as will be easily understood, when the soiling up is complete, little can reach the roots. Always allow the leaves of Celery to get quite dry before earthing up, or it is liable to rot. In carrying out the work, care should be taken that the roots are not interfered with. This will not occur if, at the time of planting, sufficient room was left between the rows. The use of paper tied loosely round the plants before they are earthed up, with a view to keeping the earth out of the hearts, is advocated by some, but, even when quite thin and good in quality, it always gives a disagreeable taste to the stalks.

Onions, like most other crops, are late this summer in finishing their growth; as soon as this is complete they should be taken up, for, if allowed to remain in the ground after they are ready for drawing, they throw out roots a second time, which prevents their keeping well. In taking up Onions, they should be tied in bunches of eight or ten as the work proceeds, separating the best bulbs from those that are thick in the neck; the latter will not keep so well, and may be used at once. The smaller growing, firm-textured kinds, such as James's Long-keeping and Brown Globe, should be kept for the spring supply, using first the larger sorts, such as Nuneham Park. There is no better method of keeping Onions than hanging the bunches so as to be just clear of each other, on nails driven for the purpose into a north or east wall. The wall of any building that has the eaves projecting for a few inches in the usual way, and that has a spout to carry off the water, will be suitable; here they should be hung up as soon as pulled, and they will dry thoroughly and keep longer in the spring, without making growth, than in any other situation. They are not influenced in the slightest by frost, and the growth they are liable to make in spring, when confined in a building, is avoided.

Lettuce, Endive, and Spinach.—Thin out Lettuces that are large enough to handle. These, where it is necessary, may now be transplanted, as after this time there will be no disposition to run to seed from the effects of any check they receive, such as frequently occurs during the dry summer season. Plant them in rows 12 inches apart, allowing a similar distance between the plants in the row. This will be enough at this season, as the kinds recommended for sowing a short time back will not require so much room as the larger-growing varieties. Prepare at once a piece of good ground for Endive; it should be well dug and moderately rich, and, if not highly manured for the previous crop, a moderate dressing should now be given. Put in the plants 15 inches apart each way. This will give room for the use of the hoe to keep down autumn weeds. Make at once another sowing of Endive, both Batavian and Green-curled; and also of Lettuce, Hardy Green and Bath Cos. Sow in an open situation, where the plants will not get drawn up. Make also another sowing of winter Spinach. Choose for this a light dry situation that will not favour rank growth, for if this vegetable is grown too luxuriantly, it stands a poor chance of surviving the winter frosts.

The Flower Garden and Pleasure Ground.

Although on heavy land the copious rainfall of the past and present months has proved very injurious, on light dry soils the reverse has been the case, and the moisture has been directly beneficial to many species of plants, such as the Calceolaria, Verbena, Viola, and others. The green-leaved Zonal Pelargoniums have, it is true, in many cases, run more to leaf than is desirable; but this tendency will soon be counteracted by the more settled weather we are now experiencing, and those varieties of the Pelargonium, which are generally grown for the beauty of their foliage alone, have seldom looked better than they do at the present time. The rainfall having tended somewhat to lower the temperature, has prevented some sorts of tender or sub-tropical plants from making the progress they would otherwise have done had the weather been warmer; and such genera as Alternanthera and Coleus have hardly kept pace with the more hardy varieties of bedding plants. The propagation of bedding plants of all kinds should now be pushed forward as rapidly as possible. Cuttings of the tricolor, and variegated kinds of Pelargonium should be put in first, as these varieties require a longer time to strike root than the more robust green-leaved kinds. As soon as the cuttings of Verbenas and similar kinds of bedding plants are fairly rooted they should be removed from the close frame and placed in the open air, where plenty of water should be given them. Many kinds of hardy herbaceous plants may now be increased by cuttings, in the same way as the Verbena and other bedding plants; amongst such kinds are the different varieties of the hybrid Phloxes, which are now in great beauty, and of which a collection should be grown in every garden, as they are exceedingly ornamental, remaining for a considerable time in bloom, and affording an abundant supply of cut flowers while they do so. Cuttings of Pentstemons, Mule Pinks, Picotees, Pansies, Tea-scented Roses, &c., may all be increased by cuttings at the present time. Careful attention must be paid to the routine operations of the season. Litter, of whatever kind, must be swept from the walks and lawn every morning, and neatness and good order everywhere maintained, as long as it is possible, by removing decayed leaves and flower-stalks from flower-beds and borders. To keep gravel walks firm and solid they should be rolled as soon as possible after a plentiful fall of rain. Finish, also, the clipping of Yew and other evergreen hedges, and also the budding of Roses of all sorts, while the bark will rise freely, which will not long be the case.—P. Grieve, *Culford, Bury St. Edmunds.*

Indoor Fruit Department.

Vines.—Pot Vines intended to supply Grapes very early next season, should now be hard and brown to the extreme point. All those in this state may be set out in the open air in some sheltered position. The canes should be supported as they have hitherto been, or they are liable to get twisted and broken. Any with green wood near the point, or about the part where they are expected to fruit, must not be put outside until they have ripened like the others. Water may be sparingly given, and decayed leaves should all be cleaned off. Side shoots may also be cut in to about 2 inches from the main stem. Later fruiting canes and others intended for planting, should now be encouraged to ripen their growth. Keep their laterals closely pinched in, and let plenty of dry warm air circulate about the wood; on fine days sun-heat will be sufficient but on cold wet ones a little fire-heat may be given. Muscats are generally the worst to ripen, and, if it is not already done, they should be placed in the warmest corner of the house. No shading should be given after this time, and, when they have been grown underneath other Vines or climbers, as many young Vines are during the summer time, move them to an unshaded house, or, where this cannot be had, a frame, covered with sashes, will do. The wood of Vines, planted out early, will now be thoroughly ripe. From these, the leaves may be removed when they have become yellow, and none of them should be permitted to lie on the surface of the border. Where late Grapes look as if they were going to be very late in ripening, take the greater part of the foliage off the lateral shoots, and remove any leaf on the principal wood which is shading the bunch.

Pines.—Where the stock of successional plants for next year is deficient, any suckers which were put in to root about the beginning of June, and which have done well since that time, may be put into a fruiting pot, in which they may be kept growing slowly throughout the winter, and where, with careful treatment, they will fruit towards the end of next year. Plants which will ripen fruit at Christmas and the new year may be slightly damped overhead on fine days after they are out of bloom; for these the temperature at night should not be less than 68°, and the bottom-heat may range 10° or 12° higher. Fluctuation, either in the top or bottom-heat, often proves injurious; therefore, keep both as steady as possible.—J. Muir.

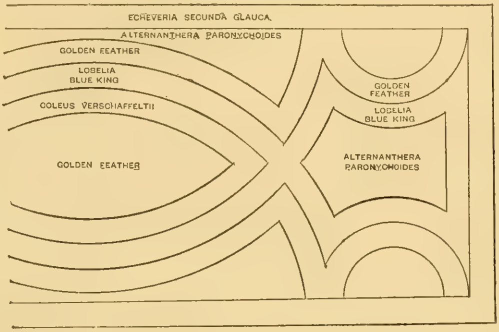
Peaches and Nectarines.—Peaches and Nectarines to be forced early should now have their wood well ripened; when the bearing wood is firm and brown, and growth has ceased, it may be considered in that condition; the buds should be prominent and mealy-looking. Under these conditions forcing may be considered a simple matter. No young wood should be allowed to grow now; and, if the leaves are very large and succulent, they may be cut to a moderate size, so as to allow the sun and air to have full power on the buds. Crowding too much young wood into the trees is an evil too commonly met with, and where growth continues and the wood is soft, failures are proportionately frequent, as might be expected, in rich badly-drained borders. The roots should be first examined underneath the trunk, and, if they are growing far from the surface, they may be carefully lifted and placed in clean fresh loam; but, if they cannot be raised without bending them much, they may be cut clean off, and, the soil being rammed firmly underneath them, no further trouble need be expected. If growth continues after this, the roots on one side may be moved more or less, and the young wood growths well trimmed. If the roots are both outside and inside the structure, the latter portion may be lifted almost entirely, the drainage put right, and plenty of good loam mixed with some lime rubbish placed over a layer of turves, the whole being made firm. The roots are then laid upon the surface in clean earth, a foot of soil being placed over the whole, and a moderate watering being given if required. If this be done, and the foliage still adheres, success may be looked for. If there are doubts of too much vigour, a few feet of the outside border may be removed along the front, and ordinary soil rammed firmly into the space. We did this with two early houses of very old trees, the branches of which were dying off and which were making great sappy shoots. The results obtained were excellent, and, where the stems were apparently decaying, fresh bark is growing over them. Keep later houses free from insects, and expose the fruit to the sun, giving, at the same time, plenty of air.

Figs.—These should be kept thoroughly clean in the early houses. If they are in pots, and have rooted through, they should have the outside portions taken off, keeping the roots in the pot well watered. When they are to be started into fresh growth, the old inert soil is taken away and is replaced with rich material, of which crushed bones form a part. For very early fruiting—say, at the beginning of April—it is a good practice to have the roots built into brick cases 4 feet square, and treated otherwise as if in pots. In Fig-houses where the trees are established, but are forming too much wood, root-pruning may be freely practised and the fresh space filled up with loam, mixed with bones, stones, or broken bricks, the whole being rammed down until perfectly firm. This system, adopted with early and late Fig trees, has always resulted in an abundant supply of fruit, and the use of the knife is seldom required. No suckers should be allowed to grow, and plenty of air should be given to fruit when ripening, but at this period too much watering at the root injures the flavour of the fruit. Where the new growths are strong and are intended as permanent wood, a nick should be made with the knife above each leaf; plenty of sturdy young shoots will thus be induced to push, and the balance of vigour in the tree will thus be equally maintained in all parts. We have had Castle Kennedy Fig, trained in the form of cordons, in full fruit the season after planting, by paying careful attention to "nicking" the young rod as it grew.

Cucumbers, Tomatoes, &c.—Seeds of Cucumbers should now be sown for winter crops; some should also be well advanced in growth. It is well to have plenty of sturdy growth made before fruiting is allowed. For the present let them have plenty of light and air, and do not permit them, on any account, to become pot-bound. Tomatoes under glass may be kept growing, all the laterals being removed. Cordons allowed to grow as far as there is room and trained overhead with the fruit hanging down, have a fine appearance, and for early work are a most valuable crop. When grown in pots their roots may be allowed to run through the bottoms into rich soil, to which a sufficiency of manure-water should be administered. Successions from cuttings or seeds may be kept growing with plenty of light and air, but they should not be allowed to become pot-bound. French Beans may now be sown in pits to succeed those in the open ground; frames may be placed over a portion outside where frosts are expected early; hoops and mats often do good service, and "plant protectors" are of much value for sheltering tender vegetables, &c. Continue to make Mushroom beds as they are required; if there is a house or shed for the purpose it is most convenient to grow them under cover instead of outside; but, in either position, the manure should not be wet nor very dry. Dry manure from excessive heating is useless; if mixed with some turfy loam it may be improved. The beds, when made, should be built very firmly, kept dry, but not allowed to heat over 90°; add the spawn to them when at about 80°.—M. Temple, *Blenheim.*

GARDENS I HAVE ENJOYED.

By A Lady.



A border carpet bed (see p. 149).

Cowley, writing to John Evelyn, whose literary fame rested at that time on his recently published "Sylva; or, a Discourse on Forest Trees," says:—"I never had any other desire so strong, and so like covetousness, as that one which I have had always—that I might be master at last of a small house and large garden, with very moderate conveniences joined to them, and there dedicate the remainder of my life only to the culture of them and study of Nature, and there,

> 'With no design beyond my wall, whole and entire to lie,
> In no inactive ease, and no inglorious poverty;'

But several accidents of my ill-fortune have disappointed me hitherto, and do still, of that felicity; for, though I have made the first and hardest step to it by abandoning all ambitions and hopes in this world, and by retiring from the noise of all business, and almost all company, yet I stick still in the inn of a hired house and garden, among weeds and rubbish, and without that pleasantest work of human industry—the improvement of something which we call (not very properly, but yet we call) our own." This is a most natural wish, though I must say that, perhaps, the pleasantest hours of my life have been spent in the gardens of others. There one has none of the cares and responsibilities which a sense of ownership brings, no regrets over the blindness which caused us to plant that Cupressus Lawsoniana in that barren spot where it could not possibly do well, no lamentations over the careless manner in which the gardener transplanted that Magnolia so as to render its flowering during the summer more than doubtful; no vexations, no remorse at having been persuaded into allowing the greater part of a garden which might have been a paradise of sweet-scented plants and old-fashioned flowers to be turned into an exhibition ground for tri-coloured Geraniums, Echeverias, Aloes, and other things well enough in their places, but which offered no real satisfaction to a true lover of Flora. These thoughts sometimes interfere with the enjoyment of one's own garden; but it is far otherwise when, either alone, or in pleasant and congenial company, we spend a quiet hour in the garden of a friend; memory recalls many "times of refreshings" like these. I speak not now of the stately pleasure grounds, when, as the learned author of the "Anatomy of Melancholy" says, you may "walk amongst orchards, gardens, bowers, mounts, and arbours, artificial wildernesses, green thickets, arches, groves, lawns, rivulets, fountains, and such-like pleasant places, or disport in some plain or park;" and then he proceeds to describe the Prince's garden at Ferrara, and quotes S. Bernard's account of the garden of his monastery. Very fine on paper are these descriptions, but, as when Don Pedro wooed the fair Beatrice, and prayed her to take him for her husband, she replied, "No, my lord, unless I may have another for working days, for your grace is too costly to wear every day," so I turn from these and dwell with a feeling of relief on the recollection of some homely spot, where old-fashioned flowers thrive well, and you can pluck them to your heart's content; where trees and shrubs (planted in no formal manner) cast a peaceful shade on grassy walks, where you are not tormented by thinking you are called upon to admire something; here nothing is obtrusive, and some feeling of the exquisite repose of Nature steals over you as you walk alone. A garden like this is the place for thought—

Minds innocent and quiet take
Such for a hermitage.

There is such a garden (probably one among numberless others) on the borders of the Mediterranean Sea. It is in a fair Italian town, as yet unhaunted by tourists. Cook is a power still unknown. No one speaks English. There are no amusements in the proper sense of the word—no casino, no theatre, no gaming tables. This garden stands "somewhat back from the village street," the Strada Borgo Marino. On one side you approach it by an Olive wood, whose shaded turf is covered in spring with scarlet and lilac Anemones, the fragrant Narcissus, and the star-like flowers of the white Periwinkle. As you enter the gate out of the wood, you traverse a long avenue of Orange trees, covered with ripe fruit, with here and there a gigantic Palm. The Oranges are for the most part Mandarins; the trees are beautifully shaped, the glossy green of the leaves forming a fine contrast to the golden fruit. Leaving the avenue, you pass into the garden proper, which is not large in extent, though the tall trees and luxuriant vegetation deceive the eye as to the size. There are no formally planted beds, but Roses, Stocks, Violets, and Mignonette, grow here in what the Irishman called "nate confusion." Here a Palm with twisted stem and yellow Dates hanging in clusters, shades a rustic seat, while groups of Aloes fill up the ground below. Stocks and Roses were the chief flowers in the month of March; but Violets, particularly the light double ones, were most fragrant. There were numerous patches of Pinks, while Virginian Stock, and other pretty annuals, made the odd corners of the garden gay. Here and there grow large Oleanders, not, however, yet in bloom. There are many fan Palms with their broad spiked leaves, and other fine trees, principally the Caroub, with flowering shrubs which were quite new to me, and of whose names I am ignorant. On one side is a rockery covered with Mosses and large plants of the Maiden-hair and other Ferns. The "old-fashioned country seat" has likewise its covering of creepers, Passion-flowers, the Gloire de Dijon, with other Roses, interlaced with the branches of a luxuriant Vine. Such was the garden in which the writer spent many hours in every week this spring entirely undisturbed. No gardener was ever to be seen, and the distant hum of life from the town, some way off, hardly broke the stillness. No one ever appeared to walk there; the silent inhabitants of the villa seemed to have left this garden to take care of itself. It was like "the land where it was always afternoon." The ground gradually rose from the gate you entered until you reached the other door, which led into the upper part of the town, and opened into the Strada Romana. From this spot you looked down on the sea, though too far off to hear anything of the fall of its waters beyond a distant murmur. Far away to the west the snowy peaks of the Maritime Alps seemed to touch the clouds; while below, white villages nestled on the hillside amid the dull green of the Olive woods; here and there a tall Campanille broke the line, and sometimes a distant bell was distinctly heard in the quiet air; on the east a tall cliff and a rocky shore, with here and there shining sands, with picturesque fishing boats, the gay-coloured dress of the fishermen adding colour to the scene.

A Garden in Madeira.

If you get into a bullock car in the town of Funchal and allow yourself to be dragged up a long hill paved with stones, having walls on each side which partially hide from your view the gently rising ground dotted over with villas, and planted with Sugar Canes; if you can bear the jolting incidental to this kind of travelling and the frantic cries with which the driver urges on his lazy cattle, you turn up a lane to the right, which takes you to a small door, over which is a porch covered with Jessamine. This leads into the garden of the Quinta de Jasmineiro. You enter, and see before you a long walk, shaded by Mangoes, Bananas, the Norfolk Island Pine, and other semi-tropical productions, and arrive at a lovely arbour, covered by a purple Passion-flower. From this spot there are two exquisite views. Looking down, you see in the cemetery the long line of Cypresses, whose sombre foliage forms a strong contrast to the deep blue of the sea. The mountains slope gradually down to Brazen Head, which is at one end of the bay, while Cape Jirao closes it in on the other. Not far from the first promontory lies a group of islands (the Desertas), whose ever-changing hues, whether seen at dawn, or midday, or in the glow of evening, or beneath the rays of the moon, add an indescribable charm to the scene. Looking upwards, the chain of mountains which crosses the island rises to the height of 6,000 feet; while, half way up, a deep gorge casts many coloured shadows at morning and evening. The town of Funchal lies low down on the shore; in its narrow streets are many splendid houses, unoccupied at the time I knew Madeira, as during the disastrous period of the Vine disease the merchant princes, to whom they belonged, had left the island, and the Vines themselves had been replaced by sugar canes. The garden (which I left for this digression) contained nearly all kinds of fruits and flowers known on the island; Apricots, Peaches, Oranges, Bananas, Mangoes, the two kinds of Guava, colossal Opuntias or Prickly Pears, fine Oleanders, Aloes, Geraniums, and Heliotropes being among the native plants, grew luxuriantly. There also were fine Tea Roses; these flowers grew in beds bordered with Box, as no Grass is possible, excepting higher up in the mountains. The garden was peopled by a quantity of African parrots, who wandered about at their own sweet will, while a large aviary sheltered love-birds, besides parroquets, and weavers of several kinds. The rainy season takes place in October or November, most often in the latter month; it is very wretched, but only lasts a short time. The rain comes down in torrents, the mountain streams are swollen, and, in their headlong course, they uproot large trees, and not unfrequently bear them, and even cottages, down to the sea. The garden presented a melancholy aspect during one of these stormy seasons. The Bananas were laid low, the flowers dashed and spoiled, the Oaks shed their leaves, and all was desolation. This was, however, of short duration. Nature soon recovers herself in this favoured spot. December retrieves the losses which had occurred the month before; the gaps in the vegetation were filled up, and all was again beauty and verdure.

A Garden in the Midlands.

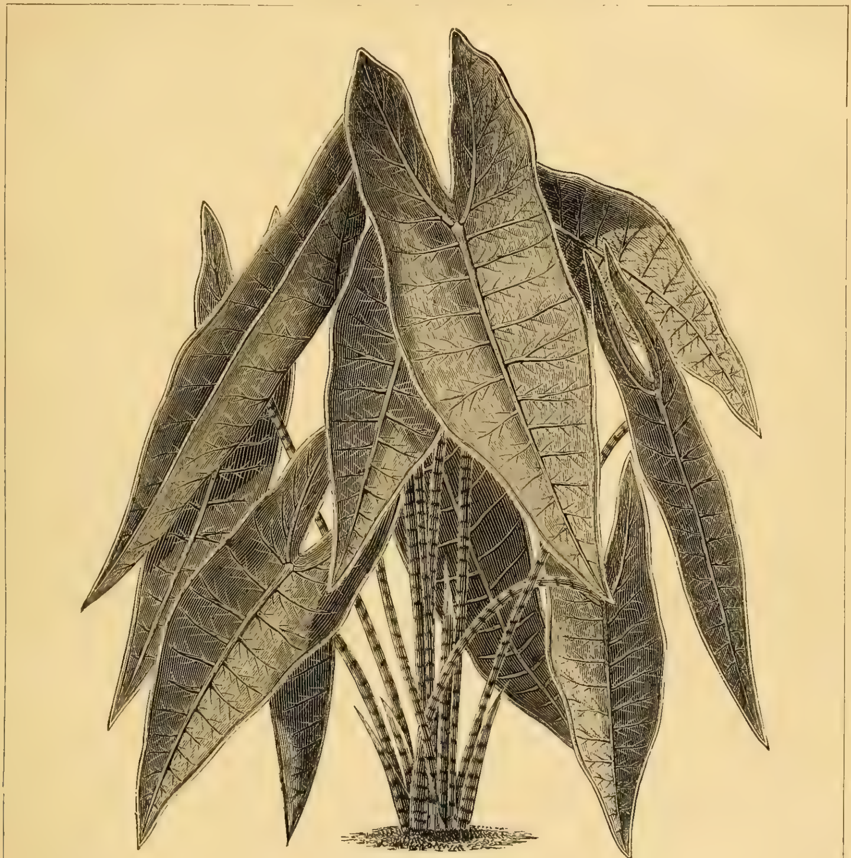
After all, the garden which I remember with the most pleasure is one in a midland county. No particular beauty marked the situation—no mountains, no river, no very extensive prospect. It occupied the slope of a hill, and from the top, where "the swallows twittered from the straw-built" summer-house, there was a lovely view of a fertile and well-wooded plain; and, in the far distance, the long line of Yorkshire hills preserved the landscape from monotony. The garden was about 1½ acres in extent: part of it was given up to vegetables, and, on the south side, the wall was covered with well-trained fruit trees, Peaches, Nectarines, Apricots, Pears, and Plums. I never saw anywhere finer crops than those produced here. No pains were spared to render this little spot not only pleasant, but profitable. But I am speaking of things as they were twenty years ago, and the science of gardening has made great progress since that time. The north wall, to which Morello Cherry trees were trained, divided the garden from a large orchard; all the length of this wall was a border, full of "April's first-born flowers," Violets, Primroses, and Lilies of the Valley. Here they flourished, for they were not disturbed; from year to year, they went on bearing masses of flowers, for it never occurred to the gentle and bookish master of the old house to think of allowing them to be dug up to make room for modern favourites. He would as soon have thought of sending his pet copy of Pietro della Valle's works to be divested of their old Italian binding, and re-clothed in modern dress, as of allowing one of his Lilies to be moved. True, he was no botanist, and hardly knew the Latin names of his plants; but he loved them well. How often have I seen him, with some ancient folio in hand, treading the grassy walks, ever and anon stooping to pluck a flower, and lay it for a mark in "the chronicle of wasted time." Many a discussion had he with the old gardener, who treated him with great reverence, excepting when he ventured to differ from him on some point connected with gardening. "Rakes" was a thoroughly practical man; little book-learning had he, and made awful blunders in most of the names of his plants; not only did he mispronounce them strangely, but he went out of his way to write them as unintelligibly as he possibly could. Some of his mistakes were amusing, "Rakes, I do wish you would label those new Roses." "Ay, ay sir, I'll libel them." "Rakes, what do you call that fine shrub?" "Why, master Duke, your grandfather, do say it is a Jupiter tree" (Juniper). "Rakes, it is such a pity you are a Methodist; now, if you would go to church you would hear such music. What an anthem we had the last time grandfather preached in Aldwark church." "Nay, nay sir, I don't think nowt at all o' your hanthems, they're all backards and forrards, and up the middle and back again, and when you think you've done wi' 'em, they just sets off, and begins all over again. I can't abide 'em. Gi' me a good ranting hymn, and have done wi' it. It's just as if i'stead o' sowing these 'ere Peas, I wor to spend my time dancing backards and forrards on a Cabbage leaf." But Rakes was well up in the practical part of his work; how proud was he of the part of the garden specially given up to Roses and other perennials. From the straw summer-house, a long grassy walk, shaded by Nut trees and Portugal Laurels, whose branches formed an arch, led down hill to the large Grass plot in front of the old house; what a walk that was! The July sun could hardly penetrate the thick foliage overhead, the path was wide enough to allow of rustic seats being placed at intervals; and here, if you strayed in on a fair summer afternoon, you would find the master smoking a quiet pipe, and always ready to greet a friend, and with him

> Discuss the books to love or hate,
> Or touch the changes of the State,
> Or thread some old Socratic dream.

On each side of the walk grew masses of flowers, Roses, Pinks, Carnations, Canterbury Bells, Phloxes, with beds of Stocks and Mignonette. The shade was so thick that

> You could not wonder at the Lilies white,
> Nor praise the deep vermilion of the Rose,

But the scent was something to remember. Beyond these, in spring towered tall Lilacs, Laburnums, Snowballs, and Syringas. The large Grass-plot was not cut up into beds, but on one side, not far from the south walk, Apple trees, trained as espaliers, divided it from the border given up to the wall trees, while in a quiet corner there was an arbour formed of a carefully trained Jargonelle Pear tree. It was fitted up with seats and a table; many were the luncheons and teas which took place here; it was, besides, the hallowed scene of many an interesting flirtation. But you will say, "What! no bedding-out plants? Was there no room for Christine or Mrs. Pollock?" If you had asked Rakes, he would have said he "knowed nowt about such like fine ladies; thowt they was furriners—or, leastways, strangers to these parts." But, for all this, there were many fine Geraniums, Heliotropes, Verbenas, and Calceolarias in the garden—only, instead of being bedded out in the orthodox manner, they were planted in the mixed borders, where they were not thought to suffer by comparison with their herbaceous neighbours. The grass-plot was a carpet of velvet, soft and mossy, and always beautifully kept; it sloped almost down to the house, only divided from it by a broad paved walk. The house itself was of the time of Queen Anne, and not remarkable for any beauty; but Nature, pitying the poverty of art, had clothed it in a lovely dress of climbing roses, Jessamines, and Honeysuckles. They nearly covered the front which opened into the garden; they garlanded the old windows, peeping into the quaint low-ceiled rooms, and filling them with perfume. A rustic porch protected the door; on each side of the porch were three shelves, which were filled in summer with pots of Balsams, Musk, and a trailing Campanula, whose pale blue flowers, hanging from the lowest shelf, touched the ground. Even early in spring there were Crocuses, Snowdrops, and Hyacinths, with other children of Flora who "come before the swallow dares." Such was a garden in the Midlands, some twenty years ago, but who can arrest "Time's thievish progress?" After an absence of fifteen years in a distant colony I returned to England, and hastened to re-visit the spot I had so often seen in my dreams. Sad news had, it is true, travelled across the sea—tidings of loss and change; but I was hardly prepared for the entire transformation of the old home. Mr. Nouveauriche, a wealthy ironmaster, had bought it, and had, of course, immediately set about the work of renovation. Little was there to be seen of all I had fondly remembered. The house was curiously decorated and converted into a cottage *orné*, and the garden——Here the curtain must be drawn. Let us hope that the last slumbers of "Rakes," who has long been laid to rest among the other "rude forefathers of the hamlet," and not far from his old master, are quite untroubled by any of Mr. Nouveauriche's doings. He worked well all his life, it is but fair that he should sleep soundly at last. N.



Alocasia intermedia.

ALOCASIA INTERMEDIA.

When well grown, this is a noble fine-foliaged plant, suitable alike for the decoration of the plant-stove or for purposes of exhibition. In habit it somewhat resembles A. Lowii, but it is even more stately than that species, while its leaf-stalks (as will be seen by the annexed engraving) are conspicuously mottled or barred in a very beautiful manner. Like its congeners, this plant is propagated by dividing its fleshy rhizomes, and, being of vigorous habit, it soon makes a good specimen if potted carefully in a fresh open compost, consisting of fibrous peat, turfy loam, and leaf mould, with sufficient coarse sandstone grit to keep the whole open and porous. It is worth notice, that few Arads like a close soil; on the contrary, a rich, free, vegetable mould is what they enjoy. If the thick roots of an Alocasia or Anthurium be examined, the tips will be found covered with short hair-like processes, which are vigorous and healthy wherever the soil is open, but which soon decay in a wet, stagnant compost. They seem to be of use in absorbing moisture from the air spaces between the nodules of peat and turf rather than from the compost itself; and if a covering of fresh living Sphagnum be placed over the tops of the pots, near the root-stocks, fresh roots soon make their appearance there, a circumstance which adds considerably to the health of the plants. It is a singular fact that the roots of nearly all the endogenous plants grown in our gardens like to grow in living Sphagnum Moss, a material which may with advantage be added to the compost used for nearly all Arads. B.

THE LIBRARY.

LAND AND FRESH-WATER SHELLS.*

Repulsive as the occupation may at first sight appear, the close investigation of the structure and habits of snails and slugs may become of such intense interest to the observer that the uninviting details are lost sight of and nothing but the wondrous story revealed by the microscope and dissecting knife is remembered. Of this we have ample proof in the interesting little volume before us, which tells us much of the private life of those lower organisms which gardeners consider as pests, but which are evidently viewed with feelings of an entirely opposite nature by the author, who imparts his information in so pleasing a manner that many may be induced to turn their attention to the subject, and add the result of their researches to the stock of general information. The book is well illustrated with coloured plates. We make the following extract from this excellent little book respecting what is called the "carnivorous slug," preying as it does upon members of its own family and upon worms:

> Before leaving the garden, however, we may look for the curious shell-slug, Testacella haliotidea (that is, resembling a Haliotis or ear-shell), which is not very rare in London gardens, although, from its habit of burrowing, it is often overlooked. The metropolitan form, however, is said to differ sufficiently and permanently from haliotidea to warrant its being regarded as a permanent variety, and it was accordingly described by the late Mr. George Sowerby as Testacella scutulum. To this variety probably belongs the animal described by Mr. Tapping ("Zoologist," 1856, p. 5,105) as Testacella Medii Templi, from its having been found under the shelter of a south-west wall, in the Middle Temple Gardens. Specimens have been procured from time to time in the Botanic Gardens, Regent's Park; in the Circus Road and Adelaide Road, St. John's Wood; at Hampstead, Hendon, Kensington, Hammersmith, and Lambeth. The animal partakes of the nature both of a slug and a snail, having a long naked body, and a comparatively small and flat shell, which serves to protect the heart, liver, and other vital organs. In the colour of the body and size of the shell it varies very much; hence varieties have come to be described as new species. It is said to be the only land mollusc which has truly predaceous habits, feeding on earthworms, which it pursues under ground, and devouring snails, slugs, and even others of its own species. Dr. Ball writes:—"I first became aware of this Testacella preying on worms by putting some of them in spirits, when they disgorged more of these animals than I thought they could possibly have contained; each worm was cut, but not divided, at regular intervals. I afterwards caught them in the act of swallowing worms four and five times their own length." When following the worm through its winding tunnels, the Testacella finds in its small flat shell a useful defence against similar attacks upon itself from the rear, for, as it moves along, the shell serves to block up the passage, and at the same time acts as a shield by which the whole body is guarded. In dry weather this slug retires into a sort of nest or cocoon, formed of slime, which gradually dries and hardens, and in this it remains in a state of semi-torpor, until more genial weather tempts it forth again.

Do not give them a Chance.—It has been estimated that one plant of the Red Poppy bears 50,000 seeds; one Sow Thistle, 19,000; one Corn-cockle, 200,590; the Charlock, 4,000; a Groundsel, 6,500; and the Black Mustard, 1,200.

TREES AND SHRUBS.

TRANSPLANTING TREES AT MIDSUMMER.

As much has been lately written about removing trees, both deciduous and evergreen, perhaps the following remarks on the subject may not be uninteresting. In the third week in June this year, I was engaged in making alterations, and had to move six Lombardy Poplars. These I planted in an open situation fully exposed to the sun, without the least shade, and, to my delight, not one of them has lost a leaf. In fact, they have grown away as if they had never been disturbed at all. They vary in height from 20 to 30 feet. In 1874, I planted, in the month of August, a great quantity of silver Birch, Elms, Limes, Planes, Lombardy Poplars, and others; and not one of them has failed. On the contrary, all of them are loaded with fine healthy foliage, and are otherwise in the best possible condition. My success is, in a great measure, owing to careful planting. After the trees have been taken up and placed in their proper position, I cut clean off any roots that have been mutilated, and straighten the rest. I then cover the roots over with fine earth, and give them a good watering, afterwards mulching well, a point of importance, especially in dry seasons. Three Larch stakes, 3 feet 6 inches in length, are what we mostly use to stake them with, placing them in the form of a triangle, and securing the tree to them with No. 12 galvanised wire; but the staking required must, of course, be determined by the size of the tree. In all cases, however, secure staking is necessary, as nothing does more injury than wind waving. The trees in question varied from 25 feet to 35 feet in height. A two-wheeled drag, 2 feet in height and 3 feet in breadth, is what we used to remove them with. One of the Birches I examined this month, and found that it had made a great quantity of fine new healthy roots. From experience, I am convinced that July, August, and September, are the best months in which to transplant evergreens, as, when planted thus early, they get well established before winter sets in, and break away in spring without check. T. Hurt.

Kenwood Park.

Giant Olive Trees.—Consul Bidwell, in his report this year on the Balearic Islands, states that the Olive tree of Majorca grows wild in the mountain land as a shrub that produces a fruit which bears no oil. When brought under cultivation grafting is practised. The ancient historians of Majorca represent that in olden times the Olive was unknown in these islands, and that the art of grafting was taught to the islanders by the Carthaginians. But the Consul states that the appearance of some of the enormous and ancient-looking Olive trees in Majorca tempts him to believe that their existence dates a long way back. He asked an intelligent Majorcan farmer how old he thought some of these trees were, and the answer was—"I believe they may well date from the time of the flood." These magnificent trees assume in the course of time most grotesque forms, and in Majorca they have in some places attained proportions which remind one of the forest trees of the tropics. The Consul says he has more than once walked round such trees, whose trunks, now rent open, would require the outstretched arms of half-a-dozen men to encircle them; and the wild growth of the trunks makes one doubt whether the branches proceed from one tree or from two or three congregated together.

Philadelphus Souvenir de Billiard and Actinidia volubilis.—M. Jamin, of Bourg la Reine, recently exhibited at a meeting of the Central Society of Horticulture of France some flowering branches of the Philadelphus Souvenir de Billiard which took its name from M. Billiard, who died at the age of thirty, a week after the siege of Paris had commenced. He was well known as the introducer of several curious and noteworthy varieties of plants, as, for example, Spiræa Billiardi, a hybrid raised from S. Douglasii, crossed with some other species, the flowers of which are not, like those of Douglasii, apt to fade when they lose their freshness. The variety Souvenir de Billiard flowered first in 1869. It is very floriferous, and has the merit of blooming late, generally during the second fortnight in June. The flowers are less scented than those of the common Philadelphus. M. M. A. Lavallée, the secretary of the Society, exhibited some buds of Actinidia volubilis, a plant belonging to the family of Dilleniads, and cultivated at his arboretum at Segrais. It was stated that this plant, which is handsome, is very vigorous, and grows so luxuriantly as to climb rapidly to the very top of large trees. It is to be admired alike on account of its beautiful foliage and its flowers. This variety has sometimes been confounded with another kind of Actinidia, and also with Maximowiczia sinensis. At Segrais it has proved quite hardy, for it bore, without injury, the severe winter of 1870-71, which killed the Amur Ivy.

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* "Rambles in Search of Shells, Land and Fresh-water." By James Edmund Harting, F.L.S., F.Z.S. London: John Van Voorst, Paternoster Row.

Camellia-flowered Balsams.—I have sent you blooms of these from plants that have been in full flower for more than a month. They are in reality Camellia-flowered; so much so, that if Camellia leaves were attached to them they might easily be mistaken for blooms of that favourite plant. Balsams are the easiest of all plants to grow. Sow them in spring in light rich soil, in bottom-heat — a Cucumber frame suits them well—and pot them on quickly, according to the size of the specimens required. At the final shift tie a piece of matting round the rim of the pot, to which bring down all the bottom branches. This is all the training they require in order to induce them to make pyramids. The compost which we use for them is one-year stacked turf and a good quantity of sheep or cow-manure. Keep all blooms picked off until the plants are wanted for the conservatory, and then liberally supply them every other day with liquid manure. Plants treated in this way will attain large dimensions, and continue blooming for a long period. It is, however, important that good seed be got with which to start. We get what are termed selected strains, and they always produce a good variety of both self and marked varieties.—James Groom, *Henham Hall.* [The blooms sent were very double and quite as large as small Camellias.]

HECTOR IN THE GARDEN.

Nine years old! The first of any
Seem the happiest years that come:
Yet when *I* was nine, I said
No such word! I thought, instead,
That the Greeks had used as many
In besieging Ilium.

Nine green years had scarcely brought me
To my childhood's haunted spring;
I had life, like flowers and bees,
In betwixt the country trees,
And the sun the pleasure taught me
Which he teacheth everything.

If the rain fell, there was sorrow,
Little head leant on the pane,
Little finger drawing down it
The long trailing drops upon it,
And the "Rain, rain, come to-morrow,"
Said for charm against the rain.

Such a charm was right Canidian
Though you meet it with a jeer!
If I said it long enough,
Then the rain hummed dimly off
And the thrush with his pure Lydian
Was left only to the ear;

And the sun and I together
Went a-rushing out of doors:
We our tender spirits drew
Over hill and dale in view,
Glimmering hither, glimmering thither,
In the footsteps of the showers.

Underneath the Chestnuts dripping,
Through the Grasses wet and fair,
Straight I sought my garden-ground
With the Laurel on the mound,
And the Pear-tree oversweeping
A side-shadow of green air.

In the garden lay supinely
A huge giant wrought of spade!
Arms and legs were stretched at length
In a passive giant strength,—
The fine meadow turf, cut finely,
Round them laid and interlaid.

Call him Hector, son of Priam!
Such his title and degree.
With my rake I smoothed his brow,
Both his cheeks I weeded through,
But a rhymer such as I am,
Scarce can sing his dignity.

Eyes of Gentianellas azure,
Staring, winking at the skies;
Nose of Gillyflowers and Box;
Scented Grasses put for locks,
Which a little breeze at pleasure
Set a-waving round his eyes:

Brazen helm of Daffodillies,
With a glitter towards the light;
Purple Violets for the mouth,
Breathing perfumes west and south;
And a sword of flashing Lilies,
Holden ready for the fight:

And a breastplate made of Daisies,
Closely fitting, leaf on leaf;
Periwinkles interlaced
Drawn for belt about the waist;
While the brown bees, humming praises,
Shot their arrows round the chief.

And who knows (I sometimes wondered)
If the disembodied soul
Of old Hector, once of Troy,
Might not take a dreary joy
Here to enter—if it thundered,
Rolling up the thunder-roll?

Rolling this way from Troy-ruin,
In this body rude and rife
Just to enter, and take rest
'Neath the Daisies of the breast—
They, with tender roots, renewing
His heroic heart to life?

Who could know? I sometimes started
At a motion or a sound!
Did his mouth speak—naming Troy
With an *ototototoi?*
Did the pulse of the Strong-hearted
Make the Daisies tremble round!

It was hard to answer, often:
But the birds sang in the tree,
But the little birds sang bold
In the Pear-tree green and old,
And my terror seemed to soften
Through the courage of their glee.

Oh, the birds, the tree, the ruddy
And white blossoms sleek with rain!
Oh, my garden rich with Pansies!
Oh, my childhood's bright romances!
All revive, like Hector's body,
And I see them stir again.

And despite life's changes, chances,
And despite the deathbell's toll,
They press on me in full seeming:
Help, some angel! stay this dreaming!
As the birds sang in the branches,
Sing God's patience through my soul!

That no dreamer, no neglecter
Of the present's work unsped,
I may wake up and be doing,
Life's heroic ends pursuing,
Though my past is dead as Hector,
And though Hector is twice dead.

Elizabeth Barrett Browning.

Cleansing Asphalte Pavements.—The jet system is now used in the City regularly for washing and cleansing the asphalte pavements, and gives relief to the traffic, when the surface is in a slippery condition, by removing from the asphalte the accumulated greasy mud. It also proved, during last winter, a ready means for removing heavy falls of snow from the streets by washing it down the sewers. It possesses, moreover, a great advantage in being able to remove the filth which gives rise to such disagreeable odours. So far as can be judged, no pavement at all equals the asphalte when worked in connection with this system. The newer wooden pavements do not seem to come near it in many important respects.

THE KITCHEN GARDEN.

SNOWFLAKE POTATO.

I have just taken up the produce of 1 lb. of seed of this variety planted early in April on a south border. The ground was in very good condition, but no manure was put in with the sets—they had, in fact, just the same treatment as our other kinds of Potatoes. The three tubers forming the pound were cut into twenty-four sets, and I find that the largest set has produced the strongest tops, and the heaviest weight of produce; therefore I think, in a general way, there is not much gained by cutting them up to small pieces. The crop is very even in size, and there are very few small tubers, not more than a score; twenty of the largest weighed 17 lbs., and the whole produce weighed just a fraction over 58 lbs. When cooked they are very white and mealy, and the flavour is superior to that of most of the American varieties which I have tried. Altogether, I consider that this Potato is destined to become popular in this country. It is, however, not disease proof, as several of the large tubers were more or less affected. E. Hobday.

Ramsey Abbey.

In the spring I obtained 1 lb. of Snowflake, which I cut up into thirty-four sets; some of them certainly had a very small portion of tuber attached to the eye. Three sets perished from wire-worms, and thirty-one sets grew. They were planted on the 24th of April, and were lifted on the 14th of August. The tubers were quite ripe, although some of the tops were still green. The crop weighed 41 lb. 7oz.; 4 lbs. were eaten early in August, in order to try their quality, which, being added, makes the weight 45 lbs. 7 oz. Twelve diseased tubers were found, weighing 1 lb.; these I do not take into account, neither do I account for a quantity of tubers under 1 inch in size. Snowflake is the handsomest and best Potato yet received from America, and will, doubtless, be much sought after in the spring. They were planted in Amies's manure, the rows were 2 feet apart, and the distance between the sets was 16 inches. The ground last year was planted with Late American Rose, Gibbs's guano being used. Amies's manure does not cause the haulm to grow so tall as guano does, and I like it better for Potatoes than that fertiliser.

Bedale. Henry Taylor.

Vegetable Marrows on Refuse Heaps.—This useful vegetable may be grown in the greatest abundance on ground that could scarcely be utilised for any other crop. Our plan is to collect all refuse, such as sweepings of lawns, walks, &c., in pits during the year, and wheel it into one large heap during frosty weather, in winter. The most decayed portion, "like leaf mould," is placed on the top, and a good covering of old potting soil is spread over the whole. On this heap plants of either the Long Green or Custard Marrow, raised in heat in March, and hardened off, are planted under hand-lights, which they quickly fill, when they are raised on bricks, and the shoots trained out regularly over the bed. The only attention which they require is watering during periods of drought, thinning the foliage and shoots when crowded, and cutting all fruits as soon as they are large enough for use. Thus treated, they never fail to produce abundance of fruit until the early frost cuts them off. The whole heap is by this time in good condition for trenching into any stiff fresh broken land, which is greatly improved by additions of this sort of compost.—James Groom, *Henham.*

The Potato Disease and Early Lifting.—The old fallacy that early lifting or the cutting off of the haulm immediately the disease appears is a good preventive of its spread arises from a belief in another fallacy, namely, that the disease is communicated to the tubers wholly through the haulm, whereas it is an undoubted fact that the living spores of the Peronospora are carried by the rain down into the tubers at once, and ofttimes the mischief is done there before it is visible on the haulm. Early lifting is all very well when the disease appears late; but this year it severely injured the early kinds long before they were ripe—indeed the earliest section is likely to suffer much more heavily than the late one, which is not yet materially injured. This fact alone proves the undesirability of being in haste to lift. Much against my own inclination I was induced, a few weeks since, to lift the whole of a first early kind, about 50 bushels in all, and these were spread out as thinly as possible on the floor of a roomy shed; but I now find that I am put to the trouble of having already to hand-pick them, finding at least one-third diseased. Where the crop in question is only a bushel or two the hand-picking is of little moment; but when it is hundreds of bushels the work is not to be treated lightly. I am more and more assured that it is best to lift the crop when time has made the affected tubers no longer a matter of doubt.—A. D.

THE FRUIT GARDEN.

CULTURE OF FILBERTS AND COB NUTS.

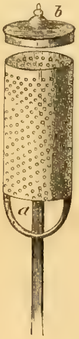
To all who contemplate growing these Nuts I would say, do not raise them from suckers, as is too commonly the practice, but from cuttings made of the upper wood, which should be of moderate size and well ripened. Let the cuttings consist of the lower parts of the shoots, and they should be at least 15 inches long; carefully remove all buds, particularly the small ones about the base, and leave only the four top ones. Thus prepared, plant them in a bed of rich sandy soil at about 6 inches apart, in February. During the first summer look them over frequently, and pinch out the points of any shoots which may be growing away from the others when they are about 6 inches long, repeating the operation as often as may be necessary in order to induce all the buds to grow equally strong. At the winter pruning they should be cut back to about 4 or 6 inches. During the second summer's growth the stronger shoots should be stopped occasionally, if necessary, in order to equalise the growth in all parts of the trees; and at the end of the second year they should be large enough to be transplanted into their permanent positions. The situation I would recommend for them would be one that is dry, both as regards soil and atmosphere; one, in fact, where the fog or mist does not show itself early on fine spring evenings, and where it cannot settle should it find its way there from other quarters. The ground should be well trenched and manured, if necessary. The trees should be planted 12 feet apart at least, and if secured to stakes (which will hold them in their places the first year) so much the better. Indeed, I would recommend that the shoots be tied out the first year in such a way as to form the framework of the tree; continually remove any branches that seem inclined to fill up the centre, and occasionally pinch out the points of all shoots that have a tendency to grow faster than the others. Remove all suckers as soon as they make their appearance, and at all times avoid injuring the roots near the base of the tree; therefore never dig within the spread of the branches; but manure may be laid on nearer the stem. If the system here recommended be carried out, little winter pruning will be required. The ground between the trees may be cropped with vegetables, or with Gooseberries and Currants, which is more often the practice. To recapitulate, do not employ trees raised from suckers, as they are sure to produce suckers again; do not overcrowd the trees, as, without light and air they cannot bear fruit; keep their centres well open during summer, and do not mutilate their roots by too much digging; lastly, do not winter-prune until they have quite done blooming, that is, until all the pollen is out of the catkins. W. Bradley.

Preston Hall, Maidstone.

PEACHES FROM ALABAMA.

We ("Irish Farmers' Gazette") had this week brought under our notice a noteworthy illustration of Peach farming on a colossal scale, as also of the successful transmission across the Atlantic, and the arrival in Dublin in excellent condition, of a quantity of ripe Peaches, gathered some three or more weeks since in the Peach orchards of far distant Alabama!—this last a feat, so far as we are aware, hitherto unaccomplished, and which is to be credited to Mr. J. H. Parnell, of Armagh, younger brother of Mr. Parnell, M.P. As well as in Armagh, Mr. Parnell, junior, possesses property in Alabama, and resides there occasionally. Peach farming is one of the most important industries of America. That Mr. Parnell engages in Peach growing on an extensive scale in the south may be inferred when it is stated that he has 10,000 trees in his Peach orchards, all, or nearly all, planted by himself and imported from England. Though only some three or four years planted, he is now enabled to supply Rivers's Early Beatrice in quantity to New York as early as the month of June, later kinds, as Crawford's Early and others, in July, when they bring from £2 10s. to £5 per bushel, according to quality, the bushel containing about fifty dozen. The present year, before leaving for Ireland, Mr. Parnell informs us he sold 2,000 boxes. But to come to the point that most concerns us here—fruit growers and consumers—namely, the mode successfully adopted by him for bringing over a large quantity of ripe Peaches from the southern states to Dublin. On examining one of the Peaches brought by Mr. Parnell as a specimen—the very high colour notwithstanding—we confessed to being sceptical as to ripeness, and remarked that it was hard as a stone. Mr. Parnell admitted it was so, but gave the reason why, by saying it was frozen, and that if allowed to stand for a day or two it would be found soft and melting enough. Mr. Parnell kindly took us to Fitzwilliam Square, north, where he is at present stopping, and showed us the ingenious contrivance, by means of which he has been enabled to treat his friends in Ireland to the products of his Peach orchards, in good condition. This contrivance consisted of a large square bin or deep wooden chest, strongly put together, and lined with zinc, within this was another large chest similarly lined, a space of some 8 or 9 inches intervening between the inner and outer chest, which was filled with ice. In the inner chest the Peaches were stored, not in separate trays, layers, or anything of the kind, but heaped as you would stow Potatoes in a pit, and there they lay, a rosy mass, in the best possible condition. In a compartment separate from the Peaches were some fine specimens of the Water Melon, superior, Mr. Parnell informed us, to the Spanish Water Melons imported by our fruiterers. It is scarcely necessary to say that the condition of the Melons was all that could be wished for. The Peaches were Crawford's Early, a yellow-fleshed, highly-coloured variety, but small, and one much larger, called by Mr. Parnell White Clingstone.

HELLEBORE AND GOOSEBERRY CATERPILLAR.



The best material for destroying the Gooseberry caterpillar is Hellebore powder, which some apply in water by means of a syringe, and others dust over the bushes. For the latter purpose the "Agriculturist" figures the following little invention for distributing either Hellebore or any other dry powder. It consists of a cylinder of perforated tin, 2½ inches in diameter, and 10 inches long; this has a fixed bottom, with a socket (*a*) to receive the end of a handle of convenient length, and a brace to strengthen the socket; the cover (*b*) fits sufficiently close to keep its place while in use. Any one living at a distance from a tinsmith, could readily make a duster of this kind out of any old can, and a wooden cover would answer as well as a tin one. Hellebore may be bought of any druggist at from 6d. to 8d. per pound; but care should be taken to get it fresh, otherwise it is ineffectual. In the case of Vines attacked with mildew the only sure remedy is flowers of sulphur, and for the distribution of these this little invention will be found equally serviceable as for Hellebore powder. Hellebore and sulphur are best applied when the leaves are wet, as, when dry, large portions of both get wasted. Q.

The Hampton Court Vine.—A few years ago, when the respective merits of the extension and restrictive systems of Vine-growing were being discussed, this Vine, alluded to as evidence of the effects of the extension system on longevity. With many, no doubt, this illustration had considerable weight, especially in the case of those who had never seen this royal Vine. I saw it the other day, and was disappointed with it. The size of the house in which it is growing is by no means excessive, and as the Vine is planted at one corner, there is more of the main stems seen than accords with our modern notions of Vine-growing. Then the laterals are weak, and the leaves small, and, lastly, the bunches, of which I am informed there were 1,270, would barely average 8 oz. each, and the berries will not be large. On account of its age, this Vine may be considered a curiosity, but as an example of Vine-culture I can only pronounce it a failure. Is it, therefore, worth while keeping this Vine longer as an object for exhibition, inasmuch as it seems evident that its crop is growing "smaller by degrees and beautifully less?" The guide book tells us "that it bears in some seasons 2,500 bunches." Why that is just double the number it has produced this year! It is, therefore, evident that its bearing powers are failing. What the public would like to see are good examples of Grape cultivation, and if they could be treated to a sight of a first-class Vinery full of fruit they would have much higher notions of Grape-growing than they can derive from inspecting the old Vine at Hampton Court.—A. D.

The Rocky Mountain Bramble.—When the expedition to the Rocky Mountains, commanded by Major Long, returned in 1821, the botanist, Dr. James, brought home dried specimens of a Raspberry or Bramble, of which the fruit, according to him, was "large and delicious." Dr. Torrey, finding that it was a new species, named it, upon the strength of Dr. James' notes, Rubus deliciosus, he not at that time knowing that every fruit met with by an explorer is, if not absolutely repulsive and uneatable, "delicious." Major Long himself greatly excited the fruit-growers of that day by his accounts of the excellence of a Grape found on the same expedition, which was some years afterwards cultivated, and found to be no better than any other wild Grape. The stories of explorers in regard to fruit must be accepted cautiously, as everything tastes good to a hungry man who has lived for months on salt pork and "hard tack." In this case "Delicious Raspberry," as we may translate Rubus deliciosus, is a misnomer, as its fruit is not only not delicious, but only barely edible. There has long been a fine old specimen of this shrub on the rockery at the Botanic Garden at Harvard University, and when Prof. C. S. Sargent assumed the directorship of the garden, he was struck with the value of the species as an ornamental plant. It has a graceful habit, neat foliage, and in spring produces an abundance of pure white flowers upon the shoots of the preceding year. While the flowers are not very lasting, their great abundance, large size, and individual beauty, commend it to all lovers of flowering shrubs.—"American Agriculturist."

Market Strawberries in Cheshire.—Strawberries are cultivated here in great abundance about this village for the Manchester and Sheffield markets. The kinds grown are Stirling Castle and a variety called Bostock. Of the two the latter is the greater favourite. It produces medium-sized fruit, not unlike small berries of Trollope's Victoria, and they are very firm-fleshed, which enables them to travel well. In a season like the present, when Strawberries are plentiful, there are not less than 100,000 quarts gathered about Timperly, and they fetch in the market from 4d. to 6d. per quart. The mode of cultivation is very simple; some parts of the treatment, indeed, would be called by most people barbarous, but it seems to answer in the case of the two varieties just named. The ground is well manured, and at the end of July or beginning of August it is marked out into 4 feet beds. White Lisbon Onions are then sown, and three rows of Strawberries are planted on each bed. The Onions are cleared off early in the following spring, when the Strawberries are allowed to occupy the whole of the ground, which is at all times kept free from weeds. The second season after planting they produce a heavy crop; as soon as the fruit is gathered the leaves are cut off with a scythe, and the beds are dressed up. Under this treatment, as I have said, heavy crops are produced; but I am of opinion that they would even be heavier and more profitable were only part of the leaves cut off.—Henry Ellis, *The Hollies, Timperly.*

Nut Tree at Preston Hall (from a Photograph). See p. 158.

Lime-dusting a Remedy for the Pear Tree Slug.—For several successive summers my Pear trees, both wall and standards, presented a burnt-up appearance—every leaf being as brown as leather; and, later on, all the leaves fell, giving the trees a mid-winter aspect. This was the work of the disgusting-looking and very offensive-smelling Pear tree slug, which annually made its appearance here in great numbers about the 15th of July, not confining itself to the Pear trees, but also attacking adjacent Plum and Cherry trees. Two years ago, I had the trees well dusted with lime, using for the purpose an old-fashioned tin pepper box. Ten days later, they received a second dusting, and evidently a severe lesson had been administered to them, inasmuch as last summer only a very few made their appearance—so few, indeed, that they were easily destroyed by hand-picking. This summer I have kept a vigilant look-out, and have not been able to discover a single one in my garden, while the fruit crop is most abundant and promising, fully repaying me for any little trouble to which I have been put. Lime-dusting may, therefore, be considered a perfect remedy for this destructive pest.—G. F., *Bellingham.*

Strawberry Enchantress.—This is a late variety, coming in with, and outlasting, British Queen, but higher flavoured and a better cropper than that much esteemed old kind. This is the variety Dr. Roden originally named Lord Napier, but he was advised to substitute another name, fearing it might be confounded with Sir Charles Napier; and every year it has so won upon his good opinion, and that of everyone who has seen it and tasted its fruit, that the above name has been adopted. It will be admitted by all who like a highly piquant fruit, with a rich Pine flavour, to be one of the finest flavoured Strawberries ever raised. It has been tested in every possible way, and though naturally a late sort, yet under a south wall it makes a good second early, whilst under a north and east wall it comes in with the Frogmore Late Pine and Cockscomb. It requires a little sugar to bring out its fine Pine and Hautbois flavour, and then it is perfect. Fruit large, and frequently conical; colour, scarlet, becoming a rich crimson when fully ripe; seeds small and prominent, light yellow, and very thickly disseminated; flesh reddish, solid and very juicy, with an exquisite Pine flavour. A first-rate cropper, bearing its fruit in clusters on short, stout foot-stalks, so that its blossoms and fruit are considerably hidden under and amongst its handsome bright green foliage.—V.

Peaches for Europe.—At a meeting of the Delaware Peach growers, held at Middletown on the 17th July, the committee appointed to confer with the American Steamship Company relative to the fitting out of their vessels with refrigerators for the shipment of Peaches to Liverpool, reported that they had called upon the authorities of the company and they favoured the project. The company would allow the growers to fit up the foremost steerage cabin with their refrigerators, which can be done with 500 dols. for each vessel. This portion of the ship would hold 26,000 or 30,000 baskets, and a compartment immediately underneath could be fitted up which would carry 6,000 additional. The company would charge the growers for the shipment of this amount of fruit to Liverpool about 2,000 dols., and give them the privilege of sending out an agent free of charge with each consignment. The officials stated that a mean temperature of 50° was always kept at sea, and that the cost for ice would, for this reason, be less. The convention accepted the report of the committee, and they were instructed to go to Philadelphia and have a further conference with the company and to report to the next meeting the cost and probable risk of the venture. The growers looked with much favour upon the proposition of the steamship company, and the prospect of a European route *viâ* Liverpool is looked upon with much interest by them. We hope they will send us better Peaches that one sees in the markets in the States; otherwise, we fear the fruit will not pay for the baskets in which it is packed.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Diamond Plum.—This fine kitchen Plum is not nearly so much grown as it deserves to be. It is a large handsome variety, nearly black when ripe; and is covered with a thick bloom. It is very prolific, and seldom fails to bear, even in adverse seasons. It is a fine Plum to plant for market purposes, as it bears freely in a young state.—E. Hobday, *Ramsey Abbey.*

The Ascot Pine-apple Strawberry.—Allow me to direct attention to this Strawberry, for which, among other choice fruits, we are indebted to the late Mr. John Standish. It has never, I believe, been "let out" publicly, but having got it through Mr. Standish's kindness, and fully tested its value, I am of opinion that it should be added to even the most choice collections.—Ferdinand Gloede, *Eppindorf, Hamburgh.*

Cropping North Walls.—These, if not of sufficient height for late Plums or Cherries, may be turned to good account for late sorts of Gooseberries and for Red and White Currants; the latter may be kept in good condition until very late in the season if covered with old fishing nets. This is better than matting up the best trees. To cover a tree with mats when in full leaf is one of the surest ways to prevent the wood from ripening, which will not only affect the next season's crop, but lay the foundation of disease and premature decay in the tree itself.—J. Groom, *Henham.*

Underhill's Sir Harry Strawberry.—Messrs. Steele (see p. 126) must not hold me responsible for the statement that Sir Harry has died out, inasmuch as I made it on the authority of Mr. Charles Turner, of Slough, whose knowledge of Strawberries is perhaps greater than that of most people. The best way to settle the point would be to send a few strong fruiting runners of the so-called Sir Harry to the Royal Horticultural Gardens at Chiswick, where they can be grown along with the true Sir Joseph Paxton. If Messrs. Steele and Mr. Cornhill will do this, I am sure Mr. Barron will be only too pleased to give their plants a fair trial and report the result.—Alex. Dean, *Bedfont.*

CARNIVOROUS PLANTS.*

By THOMAS A. G. BALFOUR, M.D., F.R.S.E.

We have always been in the habit of believing that vegetables were the natural and befitting food of animals. We must now, however, considerably modify our views; for, in some instances, we find these latter helplessly struggling against the ignominious fate of being devoured, digested, and assimilated by a vegetable; and, had we only more carefully cultivated our powers of observation, we might, in many a marshy swamp in our own country, have witnessed this process being carried on before us. But, perhaps, the finest specimen that we can study is a trans-Atlantic one, confined to the swampy districts of North Carolina; for, foremost among carnivorous plants stands Dionæa muscipula, or Venus' Fly-trap. Its very appearance would seem to indicate something unusual—its winged petioles terminating in a hinged leaf, which consists of two lobes, each having three hairs placed in a triangular form upon it, and surrounded by marginal spines, and the numerous red glands which are scattered over the upper surface of each lobe, point it out as structurally peculiar in the vegetable creation; the only plant which bears any resemblance to it being Caltha dionæafolia, whose point of likeness is indicated by its specific name. Since the structure is so unique, we might naturally expect to find the functions discharged correspondingly so; nor are we mistaken in our conjectures; for, as we proceed, we shall find that such is really the case. The power of catching flies has always been observed in this plant, and hence in various languages this property is expressed by different terms—*e. g*,, muscipula, Fly-trap, L'Attrape-mouche, and Die Fliegenfängerin; while the lovely appearance which it presents has led to its being associated in England and Germany with no less a name than that of the Goddess of Beauty herself.

Catching and Digesting Insects.

This pecularity of catching flies was well known; but, more than a hundred years ago, Ellis indicated that the object of this act was the nourishment of the plant; Linnæus, with Ellis's description before him, nevertheless recurred to the old idea that it was simply for a freak of its own that it seized the prey of which it never partook. Observations, however, have been made, too numerous and exact to allow us to doubt that the real design of all the admirable mechanism of the Dionæa has been to serve for the nutriment and growth of the plant; and it will be the object of this article to prove that a real digestion and assimilation do occur in this and certain other plants, and to show how these are effected. To do so, let us take an example, and follow it through all the stages. A fly, after hovering about, alights at last on the petiole of a Dionæa, it runs up and down upon it, and courses over the back of the leaf itself, without any evil befalling it; but, no sooner has its inquisitive nature prompted it to turn to the upper part of the leaf than it is in imminent peril, for its feet are so widely spread out that it can scarcely take a step or two without coming into contact with one or other of the six sensitive hairs which stand erect on the leaf, and, immediately on doing so, its fate is sealed, for an instant and rapid closure of the lobes precludes the possibility of escape. The spines which surround the margin of each leaf, and which amount in all to between forty and fifty, render the escape, if possible, still more hopeless; for, before the lobes have closed, the spines have crossed (like the interlocking fingers of opposite hands), and the fly may be seen imprisoned as in a cage, even before the approaching lobes have completely shut it in. I have given a case of common occurrence, and such may be considered the normal condition of the plant. But there are other occasions on which the same success does not attend the closing of the leaf, for the irritability is not alike in all, so that two or three touches may be necessary before the leaf responds to the stimulus, and, in this instance, the fly may have time to beat a retreat before even the spines have been able to cross efficiently. I have seen such cases, and one in particular, where the fly was a large one, and where the converging spines met only when the upper half of the insect had got beyond their reach, and though they pressed strongly and resolutely on the lower portion, the upper part was sufficiently free and powerful to effect its deliverance, while a slight buzz of apparent joy testified to the consciousness of the danger from which it had just escaped.

Irritability Influenced by Sunshine, &c.

Besides mere individual peculiarities, a circumstance that seems to impair the irritability is the absence of direct sunshine, for, though the difference is not at once so marked as one might expect, still it is ultimately sufficiently so. In the case of four plants, which were placed two in direct sunshine, and two in the shade, I found that, on the twelfth day, the two in sunshine closed on irritation being applied to the hairs, while, in regard to those in the shade no amount of irritation could effect their closure. This circumstance naturally points to a beautiful provision for a supply of nutriment to the plant, for it is in sunshine when, as we have just seen, the powers of the plant are most active, that the insects are found sporting most abundantly around it. The hairs with which this property is connected have a peculiarity of structure, inasmuch as they present a bulging, of a white colour, at the surface of the leaf, which, under the microscope, looks as if it served as a pedestal to the upper portion. The minute structure of the two portions also seems distinct, for, while in the hair proper we have a series of fusiform cells, or cells approaching that form, in the pedestal we have oval or hexagonal ones. From the appearance at the junction of the two portions it seems as if that part were intended to act as a joint to allow the hair proper to bend well down when the leaf contracts, so as to avoid the pressure which ultimately takes place between the two lobes. This property of irritability has a distinct relation to the wants of the plant, for, after a sufficient quantity of nourishment has been taken, no amount of irritation applied to the hair will be followed by any effect. A caterpillar, such as is commonly found on Currant bushes, had been placed on a leaf of Dionæa, and entrapped, and on July 25th, 1874, nothing but a mere skin remained; when this was removed, I first gently, and then roughly touched the hairs, and repeated the same operation on the 27th, and daily thereafter, till August 1st, but no effect whatever was produced. The supply had been sufficient to meet the simple and natural wants of the plant; and, as gluttony and drunkenness are vices quite unknown among the Dionæa community, the hairs refused to perform a duty of which there was no longer any need.

Mechanism and Mode of Closure of the Leaf.

But to return to our fly. We found that the irritation of the hairs had been followed by the closure of the two lobes, and we left the poor insect imprisoned. How was this closure effected? Some have supposed that in the midst of the leaf there are two sets of cells, the lower ones being capable of considerable distension; while the upper set have the power of contraction. According to this view, the cause of the closure is as follows:—When the hair has been irritated, a certain impression is communicated to the contractile cells, which, responding to the impulse, contract and expel their contents into the distensible cells below, and so dilate them as to cause a movement upwards of the two lobes. This ingenious theory, however, fails, inasmuch as it gives no account of the simultaneous bending of the marginal spines, and is not founded on experiments made on the Dionæa, but is rather an inference from what has been observed in some instances in the sensitive plant (Mimosapudica). When we submit this theory to the test of experiment on Venus' Fly-trap, we find it quite inadequate, for when the lower portion of the mid-rib, to a considerable depth, was cut away, the leaf still closed when irritation was applied. This was strikingly shown in the case of a leaf of Dionæa, which was thus treated, and closed at once; and which, after having had a fly added on the fifth day after the operation, remained closed for ten days; and, in fact, never opened until the digestion of the fly had been completed. We must confess our ignorance at present as to the cause of the closure, but the closure itself can easily be studied in its various stages. The two lobes approximate at once at their circumference, and entirely exclude all communication with the external world; the marginal spines at the same time cross each other in a most perfect manner at right angles to the edges of the lobes. A considerable concavity is left in the centre, where the insect may exist for some time free from pressure, and is at last killed rather by the viscid secretion, which is ultimately poured out, than by the pressure of the leaf. After a time, however, it may be sooner or later, the marginal spines gradually rise up, and a concavity becomes apparent externally, at about one-eighth of an inch below these spines, which goes on increasing in breadth till it may pass down and occupy about one-fourth or one-third of the whole of the lobe. While this process is proceeding, the upper edges of the lobe become everted to a slight extent, thus causing the spines to point backwards. The opposing surfaces, however, below this everted portion are firmly and accurately compressed together, so that no liquid can escape, and the dead body of the insect is now being subjected to considerable pressure. At this stage a new phase is often presented; the portion of one of the lobes, which was externally concave, becomes gradually convex, while the concavity of the other blade extends over its whole surface, and the one side may now be found pressing into the other, so that the convexity of the one fits into the concavity of the opposite lobe; the only barrier to this being completely effected being the remains of the insect not yet fully digested, or, as in the case of a beetle, the hardness of the external covering of the enclosed insect.

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* This article was in the hands of the printer before the appearance of Mr. Darwin's great work on this subject, but unavoidable circumstances have, till now, prevented its publication.

But, to retrace our steps from this advanced stage of the process, let us consider the condition of our fly. The blades have contracted, but there is a considerable concavity in which it may be tolerably unmolested; and if, shortly after the closure, or even sometimes after an interval of two days, the leaf be opened, the fly may be found alive, and, though to some extent weakened and stupified, may, on being liberated, recover in a short time its wonted vigour. The fly, however, has not been entrapped for twenty-four or forty-eight hours without a peculiar secretion being thrown out around it; and, if the amount be very great, there is little hope of its long surviving, for the fluid is of a more or less viscous nature, which must tend to close the openings of the spiracles, and so produce asphyxia; or the acid of the secretion may prove fatal, as this has been shown by Professor Dewar to have all the reactions of formic acid, of the pungency of which, we can easily satisfy ourselves by stirring a large ant-hill, and bringing our faces down to within about a foot of it, or, still more easily, by simply touching the Urtica dioica, or ordinary Stinging Nettle. This secretion, which contains at least chlorides in addition to the formic acid, contains the true digestive fluid, which gradually acts on the soft part of the fly, till nothing but a dry and brittle mass remains. The pressure which is ultimately kept up has, I doubt not, the effect of squeezing out the contents of the fly, and of thus enabling the fluid to come more easily and completely into contact with them. The secretion, when first poured out, seems perfectly transparent and colourless, though it is afterwards occasionally found somewhat opaque and of different colours, in consequence of mingling with the substances which it is digesting.

Source and amount of Secretion.

"But," you may ask, "how is this fluid secreted?" When we look at the upper surface of a leaf of Dionæa, we observe it dotted, apparently all over, with red spots. These, however, are not found at the portion of the leaf extending a short distance inwards from the edge. On looking at them with a lens, it will be seen that they are densest in the neighbourhood of the sensitive hairs, and, indeed, in some places in that quarter, they are arranged in apparent rows. It will also, by the same means, be seen that the dots project from the surface of the leaf; and, on scraping off a few of these, or on making a thin horizontal section of the leaf, and putting it under the microscope, the red dots are seen to be objects of peculiar beauty, being most graceful in form, and of a lovely tint. The dots are now seen to be composed of a series of cells situated in tiers, so as to form a dome-shaped body; the cells, placed side by side, have a fine crenated contour, and sometimes contain within them smaller cells or bodies of a deep red colour. My reason for supposing that the fluid is really secreted by these cells is founded (1st) on their position, for they are confined to the very space where we find that the fluid is poured out; (2nd) on the peculiarity of their form, being entirely different from the elongated hexagonal cells which constitute the epidermis; and (3rd) on their colour which, in most cases, is red, though, in a few instances, it is green. Now, in the genus Drosera, belonging to the same natural order, and having many points in common, we find that the tenacious fluid, which sparkles in the sunshine like diamonds of the first water, is also secreted by red glands; and as, in both cases, digestive qualities reside in the fluid, it is not unlikely that brilliancy of colour (which, in the case of petals, we know is constantly employed to attract insects to flowers that fertilisation may be accomplished), might be made use of to bring the flies, &c., within the reach of a fluid which has no attractive sweetness, but which, by acting on them, is designed to subserve the nutrition of the plant. Ellis believed that the fluid secreted was of a sugary nature, and attracted flies to the sensitive part of the leaf; but it has really no sugar in its composition, and is, besides, not poured out till after the insect has been caught. The quantity of the fluid secreted varies in different leaves, and also with the kind of food supplied. A choice morsel in the form of a spider or caterpillar is followed by an abundant supply of secretion; but, in some other cases, the amount poured out is very small. There is no needless expenditure of secretion; if the object placed on the blade, and enclosed, be such as can afford no nourishment to the plant, no fluid is poured out. This was strikingly shown in the case of wood and of lime, and even of a previously digested fly. The fluid is a genuine secretion, and not merely the ordinary juice of the plant which has been squeezed out by pressure. I have placed litmus paper on the surface of a leaf of a Dionæa, and have pressed it against the leaf by a piece of wood. I have also compressed strongly the two lobes against litmus interposed, but no change of colour appeared in the litmus, though it must have done so if the natural juice had been present, for it is of an acid nature. Another argument against this view is that while formic acid has been distinctly found in the secreted fluid, analysis has proved it to be very doubtful if any of that acid can be found in the juice of the petiole or flower-stalk. The effect of this secretion in digestion is also quite different from ordinary fluids; and one marked peculiarity is that, during the whole process, which may last more than three weeks, there are no signs of putrefaction; while, on the other hand, if you take a similar piece of raw beef, and enclose it in Sphagnum, with both fresh and decayed leaves, yielding an acid reaction, you will find that, sometimes in two days, the meat gives to the sense of smell indubitable indications of putrefactive decay.

Processes of Digestion and Absorption.

In tracing the digestive changes it is better for us to leave our fly for the present, and to suppose that we had at first introduced raw meat. Soon after it has been enclosed the fluid changes the colour of it from red to white, like veal, and a gradual breaking down of the mass is observed till the whole is reduced to the condition of a pulp of a light brown appearance. But while this process is advancing on the one hand, that of absorption is progressing at an equal rate on the other, so that by the time that the pulpy condition has been reached by the whole material, the original mass has been greatly diminished in bulk, and shortly afterwards nothing remains but the very thinnest scale which is left quite dry. When a caterpillar has been introduced into the leaf the process of digestion and absorption can also be well seen, for not only the contents of the caterpillar but even some of the external cutaneous divisions are broken down and absorbed so that nothing but portions of the skin, as thin as possible, can ultimately be removed. With the spider and fly as decided a result follows, though not so apparent to the careless observer; but if we take out the remains of these insects after the leaf has opened spontaneously, no pressure exercised on them will cause anything to be squeezed from their interior, which along with the shrivelled and skeleton-like appearance, bears sufficient evidence that the whole internal parts of these creatures had been dissolved and taken up by absorption. Some have allowed that digestion is effected but have denied that the leaf absorbs. Duchartre objects to this view of absorption on the general ground that such a process is not in accordance with our knowledge of the functions of leaves and of the whole course of the nutrition of vegetables, and that therefore it is not to be seriously entertained. But this is begging the question; and we have only to reply that all plants are not constituted like Dionæa muscipula; and if this latter has a peculiarity in structure then why not in function. Such a statement as the above might be allowed to pass if it had not been employed in the endeavour to overthrow, by means of it, certain positive and observed facts. In the case of the meat and albumen, these have all disappeared; in that of the fly and spider nothing but a dry shell remains. Now this fact must be accounted for. The mere shrivelling up of the entrapped fly after having been so long enclosed will not explain it, for the space was a confined one, and a moist atmosphere surrounded the insect; and, on one occasian, when I tied up a fly in the leaf of an ordinary plant growing in the same greenhouse, at the end of a week it retained its plump appearance; and hence, if this occurred when the confinement was so imperfect, it must do so all the more when the closure is complete. How then can this disappearance of the substance be explained? Some have stated that when the digestion is completed the soft and semi-fluid pulp runs down the channelled petiole, and is thus brought into contact with the spongioles of the root and there absorbed. Mr. Canby, an excellent observer at Wilmington, the head-quarters of the Dionæa, at one time thought so, but he has since changed his views. A simple experiment seems to set the question at rest. I attached pieces of litmus paper to the upper side of the petiole and pressed it into the channel, and no change of colour took place, although fluid was contained in the interior of the leaf, and the process of digestion was advancing.

Absorption promoted by Red Glands.

How is absorption affected? To this we cannot give a positive answer, and yet there is one structure which I have noticed which may throw some light on this subject. I have already spoken of the beautiful red glands which project on the surface of the blades of the leaf, and which secrete the fluid. Now these glands, in their interior, exhibit bodies not unlike stomata, but which differ from the ordinary bodies of this nature, which are found on both upper and lower surfaces of the leaf of this plant but, as usual, much more abundantly on the lower surface. They also differ from the other stomata of the Dionæa, which are of a pale brown colour, and are surrounded by peristomatic cells, and which are confined exclusively to the under surface of the leaf. The functions of stomata cannot fail to be efficiently discharged by these two different sets of bodies; and surely, under such circumstances, it is natural to believe that these central structures of the glands absorb the fluid as soon as it has been properly digested. One experiment seems rather favourable to this view. A small spider, on the 7th day after capture by the leaf, was found very damp, and this condition extended also to the sides of the leaf; when these sides were pressed with a knife a fluid oozed out from the side, which may have been absorbed material, especially as an experiment, which I had previously made, and have already recounted, seemed to prove that strong pressure on a leaf in ordinary circumstances will not squeeze out any acid fluid from the surface of the leaf. How long does the process take for completion? In one case, where a piece of raw beef, about the size of a blue bottle fly, was used, the process took from the 3rd to the 25th of July, *i. e.*, twenty-two days; but, of course, the time must vary, within certain limits, according to the nature and amount of the substance introduced, for, in one instance, where a fly was snared, the whole process was finished in exactly half the above time, viz., eleven days.

Droseras also Carnivorous.

The Droseras are widely distributed, and are found in the temperate zones, so that in our own country abundance of some of the species may be procured or observed in their native marshy haunts. The three British species (Drosera rotundifolia, intermedia, and anglica) and a South African Drosera not yet named, and D. Whitakerii (a South Australian species) may with advantage be chosen for observing the process of fly-catching and digesting. They have a great resemblance to each other, the British species differing in length, while the other two are not unlike Drosera intermedia, though the breadth of the leaf is greater than in that species. In D. Whitakerii, also, the glandular bodies extend only little more than half way down the broadened portion of the leaf. The leaves all spring from the root in a circular manner. The broad or expanded portion at the end is often somewhat concave, and over that part of the leaf, and even sometimes extending farther down the leaf, are numerous closely-set hair-like bodies, with red oval heads or glands which secrete a clear transparent viscid fluid which glistens in the sun like dew, and hence the name Drosera and our own English term Sundew. That vegetable dewdrop does not, like its aqueous kinsman, evaporate under the scorching rays of the sun, and few objects of greater beauty can be seen than this clear fluid sparking in a sunbeam. If you view it apart from the red gland which has secreted it, it has almost the brilliancy of a diamond, while, if the red gland be seen through it, the aspect of a resplendent ruby is presented, though in some the colour is of a paler red, reminding one of the Balas ruby or spinel. Amid this gorgeous display, one can easily understand that flies and other insects will not be indifferent spectators, but that, attracted by the almost magic scene, they will seek to quaff the crystal drop, only, however, to learn, in their sad experience, that what seemed so limpid is of a viscous nature which detains them as effectually as any bird-lime could possibly do the objects for which it is spread. Finding their mistake the insects struggle to escape, but all their efforts only tend to entangle them more thoroughly admidst the viscid threads since other glands are touched and drawn over the deluded victim. In a few hours, sometimes within little more than one hour, at other times, however, at a longer interval, the leaves of the Drosera have folded themselves round the unfortunate insect which is now effectually and hopelessly secured. If this occurs in the longer bladed species, the fly is very soon rendered invisible to anyone looking from above or below, since the leaf is wrapt completely around it; but, on looking sideways, one may still see either extremity of the fly. The process, however, continues, the hair-like glands which were at the sides of the leaf, and which often point backwards, fold forwards and inwards and discharge their viscous burden on the victim's head and body; and so thickly are they turned inwards, and so admirably are they placed side by side, that on looking in from either side the appearance is like that of the entrance to a mouse-trap, but no particle of the insect is at all visible. I have, again and again, witnessed this process and have observed that every hair-like or stalked gland has, at least in most cases, ultimately contributed its share to the common result.

Method of Fly-catching observed in Drosera rotundifolia.

In the Drosera anglica this phenomenon is almost constantly witnessed; but when a fly has been caught by the viscous fluid of the Drosera rotundifolia, it is often amusing to observe the vigorous efforts that the little leaf makes to prevent the loss of its dinner; at first it curls partly over the insect and then succeeds so far as to it render it invisible from above, while meantime almost all the hairs are actively employed in rendering their valuable aid in order to attain this desirable end. In some instances, as when the object is much too large, the Drosera rotundifolia is still not to be beat, for he folds in the two sides of the leaf and brings its upper part somewhat like a hood over the captured object. In such cases, however, he often falls a victim to his own firmness of resolution, for the over-stretching of the leaf seems to lead to its attenuation by the absorption of its tissue till ultimately only a thin membranous-looking body is found surrounding the digested insect. By a plant of the African species an important lesson of untiring energy was taught me. On September 26th, 1874, two living flies were placed respectively on two leaves of this plant; on the 28th one leaf had completely encircled the fly, and all the hairs, even those from the edge, pointed to the insect; on the 29th the encircled fly was entirely concealed from view. The other leaf, however, was not, at first, so successful, for in its attempt to coil round the fly, the hairs projecting at the end of the leaf had, while extended, come into contact with another leaf, so that while the leaf covered the fly above, it could not coil round it below. Such was the state of matters on Sept. 28th; the record of Sept. 29th is "the leaf is evidently trying to turn in the terminal hairs." On October the 1st the endeavours of the plant were crowned with complete success, the hairs had cleared the difficulty, and the fly was entirely encircled. The Drosera dichotoma or binata, so called from its long leaves dividing into two, has rows of stalked glands along each side of the very narrow leaf, and, if an insect be placed on the centre, the side-stalked glands in due time bend over from both sides, and also from above and below the object, to the distance from which they can reach it, which they cover more or less with their stalks and glands, and on which they discharge their secretion. The leaf in this case, however, does not bend from the top and roll round the fly. The Drosera filiformis, or thread-like Sundew, is not uncommon in North America, not far from the region of the Dionæa; and, as some of the observations recorded were made by those on the spot, it is just possible that the mode of action in its native locality may be somewhat more vigorous than in this country. In my experiments, at least, on this species, I have only obtained results very similar to those which occurred when Drosera binata was operated on. Mr. Canby, however, declares that, if a fly alight near the end of the leaf, the tip bends over or curls round it; this I have never witnessed. In one case I observed a slight bending; but it was laterally, and had no inclination to encircle the fly. Nor have I been so successful as Mrs. Treat, of New Jersey, who affirms that she placed a living fly at about half-an-inch from a leaf of Drosera filiformis, and observed the tip of the leaf perceptibly directed towards the fly, which it reached in two hours. My experience is given in the following experiment:—July 3, 1874, a dead fly was fixed on a stick and placed about three-quarters of an inch distant from the leaves of that species of Drosera. Two of the leaves changed their position, and were found weighed down with fluid, and quite removed from the spot where the fly was. On July 6, another leaf was found in the early part of the day touching the wing of the fly; but, at 3.30 p.m., it had removed about one-eighth of an inch from it. On July 7, at 3.45 p.m., the leaf touched the fly, and seemed actually to have described a curve in order to reach it; probably, however, the curve may have been owing to the leaf at that part having been in contact with a wing of the fly. On July 8, a leg of the fly was, at its very extremity, touching the apex of a gland. July 9; 8 a.m., leg free; but right wing was in contact with a stalked gland, and moved when the leaf was touched. July 11; leaf was now about a quarter of an inch away from fly. The previous contact seems to have been quite accidental. In another experiment it was found that a leaf of Drosera filiformis had moved about a quarter of an inch to one side, and, in about one hour afterwards, it had returned about one-eighth of an inch, and, on the next day, was nearly back to its former position. These facts differ from those observed in the Dionæa in there not being an immediate movement of the leaf when a fly alights, and the reason of this is at once apparent, for the viscous secretion, which is almost always present in a healthy plant, detains the insect, and gives time for the gradual movement of the stalked-glands towards and around it. These stalked glands do not merely touch the insect and deposit their secretion upon it, but they also grasp or press firmly on the creature so as to prevent its removal; in one case I had to cut some of these stalked-glands before I could remove the remains of the insect; this occurred in Drosera binata. In Drosera rotundifolia, where the fly was not altogether covered by the leaf, in consequence of its being too large, some two or three stalked-glands embraced its neck so strongly and unceremoniously as to twist the head a little to the side, and appeared, ultimately, to break up the fly. All the stalked-glands were, in this instance, actively engaged in discharging some duty towards the captured prey. As the insects thus caught are digested and absorbed, we might expect to find in the Droseras, as regards indigestible substances, a behaviour similar to that which we witnessed in the Dionæa, and such is the case; for, if a substance of that nature be placed on the leaves, these will not close on it, nor will the stalked glands bends towards it, and, accordingly, we find the piece of stone or brick, lying on the open surface and quite free from moisture. In one case of Mrs. Treat's, where the piece of chalk was moistened, she succeeded so far in deceiving the plant that it curved its stalk-glands inwards towards it, but immediately thereafter, on discovering its mistake, withdrew them. Day after day have I seen a small piece of wood on the surface of a leaf with no stalked-gland pointing towards it. The secretion, as I have already said, is very viscid and, consequently, tenacious, and can be drawn out to a considerable distance without breaking. The plant, however, which has seemed to me to have the most tenacious secretion, is not a Drosera, though belonging to the same natural order, and bearing a strong resemblance in its leaves to Drosera filiformis. This plant is named Drosophyllum lusitanicum; the drops of secretion are here largest on the glands on the lower part of the leaves, which seems to be the locality where captures are generally effected. I have seen the secretion of this plant drawn out to more than 6 inches. While the secretion of the Dionæa is very acid, that of the Droseras is not so to any amount. A recent writer has announced that he has obtained from the secretion a substance analogous to pepsine, which he proposes to call Droserin, and which he declares to be possessed of marvellous digestive powers so far as insects are concerned.

Other Carnivorous Plants.

Various plants besides these have been proved to have insectivorous habits; but I have already exceeded my limits. I feel the less regret in leaving the Nepenthes untouched, inasmuch as these were most ably treated by Dr. Hooker, at the last meeting of the British Association, and, as I learn with sincere pleasure that the work of Mr. Darwin on the whole subject of insectivorous plants, which has occupied his attention for several years, is announced as on the eve of publication; and, when we consider that author's distinguished ability as an observer, and his skill and ingenuity in questioning Nature, we cannot but anticipate for ourselves a rich repast, while we greedily *devour* and inwardly *digest* what is contained within the *leaves* of his book. No one can contemplate such a subject as that of which this article treats without being struck with the fact that there are links in creation appearing every here and there, and testifying that in structure and function animals are not separated from plants by a perfectly impassable barrier; and these marks of unity in creation become a most pleasing and instructive study to everyone who takes an interest in the works of God. Many products, which were at one time supposed to be exclusively the work of the vegetable kingdom, have been found in connection with the animal one, and *vice-versâ*. What, for instance, can be more clearly vegetable than the chlorophyll, which is the cause of the lovely and refreshing verdure which is everywhere exhibited by plants? And, seeing that this product exercises a special reducing power on the carbonic acid of our atmosphere, enabling the plant to fix the carbon and eliminate the oxygen, it seems only fitted to find a place in that kingdom which has been called an "apparatus of reduction;" yet, it is not altogether alien to the animal world, for allied green granules have been found in the bodies of Hydra viridis, Euglena viridis, &c. And the chief pigment in the bile of herbivorous animals has been regarded by a high authority in such matters as somewhat analogous to this product of the vegetable world. Again, cellulose, of which the walls of the cells of plants are almost, if not entirely, made up, is not exclusively confined to these, but is found also in the mantle of Phallusia mammillaris, and in that of the Cynthiæ, &c. As regards the liver of animals, no less eminent an authority than Prout has declared that here the animal and vegetable kingdoms approximate in function; his words are—"Long and repeated attention to the functions of the liver, both in health and disease, has satisfied me that this organ in its assimilating function is analogous to, or identical with, the assimilative functions of vegetables." In the Dionæa, we have just seen the analogue of a stomach in its acid secretion and power of digestion. An experiment by Dr. Burdon Sanderson on the same plant seems to connect in a wonderful way the contraction of its leaf with muscular contraction in animals; and, Darwin has somewhat startled us by the announcement that, by puncturing a particular part of the plant, he has succeeded in producing a kind of hemiplegia or one-sided paralysis. Such interesting observations, cannot fail to excite our wonder.

Calceolaria Prince of Orange.—Two beds of this profuse-blooming Calceolaria have been very fine with us this season; though several times much injured by the heavy rains, they have all recovered, and have been very effective.—R. Greenfield, *Priory Gardens.*

THE HOUSEHOLD.

A WITNESS.

Rather more than three years ago, finding that an oppressive feeling, unfelt after other meals, always followed dinner, I came to the conclusion that it must be caused by meat, which I seldom took at any other time, and I determined to try the experiment of abjuring flesh meat altogether. The best consequences were soon apparent, and I found, too, that my digestion, which had always been weak, was most materially improved. Thus I become a vegetarian, and I have consistently remained one ever since. During these three years I have often undergone considerable physical exertion in various recreations. I have walked thirty-two miles at a stretch in eight hours and a quarter, without much fatigue. I rowed last year in my College eight, without any change in my ordinary food, thus proving that the generally received idea of the necessity of an almost purely meat regimen during training is a mistake. I won the mile race in our College sports last term, and am acknowledged to possess as much endurance as anyone in the College. I find considerable difficulty in getting good vegetables up here, as various courses of meat are considered the one thing needful; and I therefore subsist almost entirely on bread, butter, rice, biscuits, and fresh fruit. I drink water and very weak tea, abstaining from all alcoholic beverages.—G. W. Sibly, Lincoln College, Oxford, in the " Dietetic Reformer."

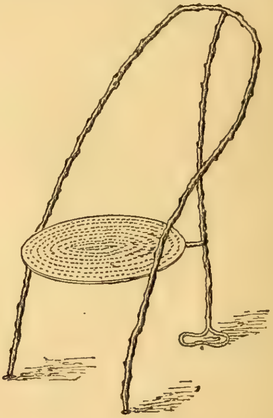
[Vegetarianism may seem slightly out of our way, but we enjoy quoting such testimony as the above, if only to call attention to the great neglect of vegetables and fruits as food, which may be everywhere discovered, both in hotels and private houses. This may be observed even in country places where there should be no difficulty in getting vegetables. We have frequently seen a costly dinner served in London without, perhaps, a sufficiency of one tender, delicate, and properly-cooked vegetable. We know nothing more unwholesome in its way than the ordinary French or sham French dinner, which so often does duty for a small dinner party in London—meats, game, rich sauces, sweets, and wines abound; but vegetables, without which there is no good meal, are merely used in mean variety, as a sort of succulent condiment on these dismal occasions. Now, nothing has been proved more completely than that some of the finest races that exist subsist wholly on vegetable food, and those who would oppose a purely vegetarian diet admit that an abundance of good vegetables is a necessity; yet the neglect of vegetable food is we fear, if anything, on the increase. So, too, are those rheumatic and too numerous allied diseases, which, as recent researches have ascertained, arise from stomach derangement, in inducing which a diet mainly composed of rich animal food, sauces, &c., is most potent. To such improper food, and the heavy morning and evening doses of hot tea and other injurious beverages, the blue noses and debilitated aspect of numbers of persons may everywhere be traced. As regards vegetarianism, it is wholly impossible to give it a fair test under the present system, when meats, beer, and wine are considered the essential elements of a dinner. It is even sometimes difficult, for anyone fond of vegetables to a moderate extent, to satisfy the taste. If vegetarians can furnish such evidence as the above under a system where the essential food of man is degraded from its true place, may we not expect great results when the kindly fruits of the earth, and the numerous vegetables now known to our gardens, are cooked and served as they ought to be?]

The Improvement of Vegetable Cookery.—The greatest benefit which might accrue from organising vegetarian societies without any fanaticism or nonsense would be the consequent improvement of English cookery in one of its chief departments. We are blessed with the most splendid vegetables in the world, and, as a rule, we dress them badly. We do not know what to do with our Mushrooms. There are at least a hundred ways of dressing Potatoes; and we have three—boiling, mashing, and frying—and not one plain cook in fifty can fry Potatoes. Of the culinary uses of Lentils, Haricots, Chick-peas, and Indian Corn, cooks are almost entirely ignorant. A rational and appreciative course of vegetarian experiments, carried on at a season when the consumption of animal food is usually comparatively small, might result in the discovery that, while a large proportion of the community rarely obtain any butchers meat, another section eat so much as to be afflicted with chronic dyspepsia; while, in the matter of preparing vegetables for the table, our obstinate ignorance, carelessness, and wastefulness have made us the wonder and laughing-stock of foreign nations. Let us have a vegetarian society in London by all means.—" Telegraph."

Neglected Edibles.—In Canada and America numerous varieties of Marrows and Pumpkins are cultivated, many of the former being remarkable for their eccentric shapes as well as excellent flavour. Among them the Hubbard Squash, of the form of an elongated tapering Melon is the best table variety, the rind or shell being, when ripe, of a very hard nature; it will keep much longer than any other description. In the United States as many as 5,500 lbs. of this kind have been raised on half an acre of land. The Canada or Crockneck Squash is of a very peculiar shape, bulbous at one end and thin and bent at the other; it is rich, productive, and early, and a good sort for keeping, as is also the Early Summer Crockneck; this description is a running and spreading kind, and is only fit for the table when young and tender, which may be known by pressing the thumb nail through the rind. The Yokohama Squash is, as its name implies, a Japanese variety, being fine grained and without fibre; it is a very useful sort for pies. The flesh is of a deep orange colour, full flavoured, sweet, and dry. The Turban Squash is rather different in shape and a later kind. The field Pumpkins, of which there is an immense variety, are mostly used for feeding cattle; they grow to an enormous size, often weighing 200 lbs. each.

A RUSTIC GARDEN CHAIR.

The accompanying illustration represents a chair which I saw in the Acclimatisation Gardens, at Paris, the other day, and which struck me as being worth attention. It is remarkably comfortable as a garden seat, and from its extreme lightness, although made entirely of iron, it can easily be carried from place to place. For setting under shade trees on the lawn in summer, or in the conservatory, such chairs are very desirable, and they are very durable. The seat is made of sheet iron perforated, so that it is impossible for water to lodge on it, an important point in garden chairs. B.



Underhill's Sir Harry Strawberry.—I can fully endorse Mr. Cornhill's remarks (see p. 125) respecting this fine Strawberry. When forced, my own opinion of it is the same as his; but I am confident that, to fully appreciate its merits, it should be grown out of doors. I have had the true Sir Harry for more than eight years, and I desire no better for a second early variety, as it is almost perpetual in its fruiting for a long time after it comes into bearing. With Mr. Cornhill's testimony in favour of its flavour I quite agree, and I find that when grown out of doors the drawback which he mentions, of its not increasing in crown, becomes less apparent. With me it has formed crowns freely, and has borne for a longer period than any Strawberry with which I am acquainted. It, however, makes foliage sparingly, which exposes the fruit to the attacks of birds more than most other varieties. To obviate this I plant them thicker in the row than stronger-growing kinds, viz., 3 feet between the rows, and 18 inches apart in the row. Early in the season I mulch them well with good stable litter; this I consider to be beneficial to all kinds of Strawberries, let the season turn out wet or dry. This year I have saved every runner I could of Sir Harry, and I should be happy to send any of your readers interested in Strawberry-growing a few plants of it for comparison or trial.—A. Pettigrew, *Cardiff Castle.*

GARDEN PARTIES.

Now that the London season is over, and those who have been enjoying themselves in the metropolis are returning to their country seats, garden parties may be expected to form an important outdoor amusement. They, however, vary much in their arrangements, some being on a large scale, involving invitations to the whole neighbourhood far and near, others of more modest dimensions, being only intended for friends residing in the immediate vicinity; but for all the form of invitation is the same—a card with "Mrs. A.—At home," printed on it, with the name of the invited written above, and the date of the entertainment below, and with "four to seven" printed in the corner. To this some people add either "Garden party," or "Croquet," but this is not necessary. It is usual to have a tent pitched where the refreshments are served, the latter consisting of tea, and coffee, bread and butter and biscuits, cake, sandwiches, fruit, claret cup, and lemonade, besides ices. Sometimes, however, where the entertainment is not a very large one, the tent is dispensed with, and the refreshments are then placed in the dining room. It is a mistake to have tea and ices handed round out of doors; the ices are apt to melt, and the tea to become cold; besides it forms a little occupation to visit the refreshment tent, and induces people to move about. Some amusement should be provided for the younger guests, such as croquet or lawn tennis, the latter being now a far greater favourite than the former with most people; but many hostesses, in their amiable anxiety to amuse their friends, are somewhat apt to insist on their playing at such games whether they wish it or not. And this we need hardly point out is a mistake; amusement should be supplied, but people should be left to their own inclinations as to joining in it. A very important element of success is that there should be plenty of seats, the greater portion being arranged in the shade looking on to the croquet ground; but the other portions of the pleasure grounds should not be neglected. Sofas, arm-chairs, and ordinary chairs from the house do perfectly, basket-chairs, and garden seats being intermingled with them. The drawing-room, however, should not be entirely denuded of seats. It is a good plan to place a piece of stair carpet, or even of Cocoa matting, before the chairs, as many people have a rooted belief that Grass must be damp even in the dryest weather. A band is a very good addition to the amusement, but care should be taken not to place it so near as to render conversation difficult; talking to each other is what amuses people most, and is the real object of all parties. Very frequently it is wished that the garden party should end in a dance, and then the arrangements are slightly different; the cards specify, instead of "four to seven," "garden party 4.30, dinner 7.30, dancing." The afternoon refreshments are served in the tent, and a cold collation is served in the dining-room, with the addition of hot soup, and perhaps entrées. People sit down to this at 7.30, and dancing commences about nine o'clock. If, however, dancing does not enter into the scheme of the entertainment, the dinner is not requisite, as people leave about seven o'clock. If there is either a lake or a river in the grounds, boats should be provided, but it is as well to have some experienced waterman at hand. It is always best, unless the house be a very large one, to put on the cards "weather permitting;" for nothing is more embarrassing to the hostess than to find the party, which would have comfortably filled her garden, crowded together into a small drawing-room. It is very common to find that people believe themselves privileged to take anyone they please with them to a garden party, but it is really in the worst taste. If friends are staying with them it is only courteous, and involves very little trouble, to write and ask permission to bring them—a permission always willingly granted; but it is only fair to the hostess that she should know what numbers to expect. Also it is bad taste to take children, unless they are specially invited; they are apt to become excited, get into mischief, and greatly interfere with the amusement of those for whom the party is intended; and if a hostess wishes the children to come, she is sure to ask them. We have often pitied a hostess when a guest, arriving with two or three uninvited infants, say, "I hope you don't mind my having brought the children," and politeness forces her to disguise the truth.—"Queen."

PADDINGTON FLOWER MISSION.

During the month of July seventy-two hampers and parcels of flowers were received from the following places:—Haslemere, Shirley, Missenden, New Brentford, Street, Steyning, Gomshall, Witham, Reading, Calcot Park, Kingston, Stevenage, Sandhurst, Slough, Langport, Solihull, Guildford, Buckingham, Stanmore, Leatherhead, Blackwater, Bridport, Market Deeping, Harlow, Eastbourne, Middleton, Hawley, Adisham, Albourne, Plumpton, Yately, White Netley, Swansea, Banbury, Grasmere, and from school children, besides two parcels from unknown contributors. The distribution has been 2,315 bunches of flowers to St. Mary's, Lock, Great Northern, Gough House (for children), Hip Disease, London Temperance, and Samaritan Free Hospitals; the Workhouse Infirmary; Annuitants', Victoria, Helvetia, Warrington, Mrs. Russell Gurney's, Dudley Stuart's, Ladies' Aged Poor, Crippled Girls', Penitents', Deaconesses', and Gentlewomen's Homes; Hyde Park, Miss Boyd's, Miss Cole's, and St. Matthew's Orphanages; St. Mary's Kitchen, and Cripples' Nursery; to firemen, policemen, and postmen, and many sick and infirm persons at their own homes; Servants' Training and Ragged Schools; St. Giles's Workhouse, East Street Mission, and Christian Union Almshouses. The object of the Flower Mission is to procure a weekly supply of flowers for distribution among the sick, infirm, and poor, in hospitals, infirmaries, and institutions, and in their own homes. To accomplish this, an endeavour is made to interest residents in the country to forward the supplies, which, upon arrival, are distributed in the way mentioned; and the good done by this means it is impossible to calculate—the admiration of the works of Nature, the kindness and sympathy excited between various classes, and the thought for others which is encouraged in the village school children, where the movement is taken up, are a few of the results. Flowers are received on Thursdays, between 10 a.m. and 2 p.m., by kind permission of the Paddington Charity Organisation Committee, and are distributed by ladies to the various hospitals, infirmaries, homes, and orphanages named. It is hoped that the supply and distribution may be continued throughout the summer and autumn, until the end of October. Anyone willing to contribute is requested kindly to observe the following directions:—(1) All parcels, paid or unpaid, to be addressed—Mr. Harrison, 3, Leinster Street, Cleveland Square, London, W.; (2) if from any distance out of London, to be sent off on Wednesday; (3) if box or hamper is to be returned please say so; (4) in all cases please to send the name and address of the contributor. The only expenses are 1s. weekly to a boy messenger, who meets some parcels at the railway station, and carries the flowers to the more distant recipients; and the carriage, to and fro, of the hampers, &c. This last expense, of course, varies from week to week, and in order to meet it small contributions are gratefully received.

Memorial to the late Mr. Standish.—It is proposed by a few friends of the late Mr. John Standish to raise to his memory, as a mark of affectionate respect, a tablet over his remains in the Ascot Churchyard. The form of the memorial will be determined hereafter, when the amount likely to be available is known. Subscriptions (limited to 21s.) will be received by Mr. Harry J. Veitch, Honorary Treasurer, *Royal Exotic Nursery, King's Road, Chelsea.*

Figs in Dumfriesshire.—In Mr. Thomson's report on the fruit crops at Drumlanrig (see p. 138) he says "there is no attempt to grow Figs on open walls." This is a matter of some interest to me, and one upon which I should be obliged to Mr. Thomson for more information. I well remember some fifty years ago that Figs ripened beautifully out of doors at Eccles, a place about two miles from Drumlanrig, and that I even won prizes with them at fruit shows in Dumfries. If, therefore, Figs will not now ripen out of doors in that district, the fact seems to afford another proof of the correctness of Mr. M'Nab's opinion, that the climate of Scotland has within these last fifty years undergone a change.—Robert Kennedy, *Piazza, Covent Garden.*

The Killarney Fern as a Wall Plant.—We have never seen this Fern in happier position than growing on a bare wall as it does in an "intermediate" house in Mr. Sim's nursery at Foot's Cray. It is in a very shady spot, and is kept well moistened during dry weather. Growing in this way the character and beauty of the plant are better seen than when it grows low and tufted in a pan or case.

Gynerium roseum Rendatleri.—On consulting our notes, we find that this variety is so much superior to all others in the beauty of its intense colouring, that we cannot too strongly advocate its culture. The month of May, when they have just begun to start into growth, is the best time for transplanting Gyneriums.—E. Andre, in "Illustration Horticole." [It is very desirable that the rose-coloured varieties of the Pampas Grass selected in France, and of which this is one, should be extensively planted in this country.]

Tropæolum compactum coccineum.—A large bed of this Tropæolum in Mr. Dean's grounds at Bedfont is now very effective. The kinds belonging to this section differ from the old Tom Thumb race in being continuous bloomers and in having the flowers well thrown up above the foliage. Plants raised from cuttings produced the most even masses, and are best for ribbon lines. A few potfuls of cuttings put in at the end of August will give a large numbers of plants in the spring.—D. A.

Best Strawberries for Different Purposes.—I grow successfully the following Strawberries for different purposes, and can confidently recommend them, viz.:—For early forcing—Early Prolific (Dr. Roden), President (Green), and Sir Joseph Paxton (Bradley); for late forcing—Underhill's Sir Harry (true), Cockscomb (Ingram), and James Veitch (Gloede); for general purposes—Early Prolific, President (which, in my light soil, bears enormously, and is unique in flavour), Sir Joseph Paxton, Unser Fritz (Gloede), and Rifleman (Ingram); for jam—La Constante (De Jonghe) and Jeanne Hachette (Gloede); for fruit-ices and punch—Belle Bordelaise, Royal Hautbois (Rivers), Black Hautbois, and Red Alpine; for purposes of exhibition—Unser Fritz (perhaps the noblest of all Strawberries), James Veitch, Cockscomb, Dr. Hogg, President, and Sir Joseph Paxton.—E. Nebelsieck, *Villa Albertina, Hamburgh.*

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

August 18th.

Messrs. Veitch and Mr. Bull staged, on this occasion, purple cut-leaved forms of the Bread Fruit, which may possibly be useful in sub-tropical gardening; and the last named exhibitor had also a select collection of new hybrid Echeverias. A select and well-grown collection of Apples, including good specimens of the Irish Peach Apple, one of the best of all the early varieties, came from Mr. W. Paul, of Waltham Cross.

First-class Certificates.—These were awarded to the following new plants and florists' flowers, viz.:

Masdevallia Daviesii (Veitch).—A free-flowering Orchid, with narrow leathery leaves, and golden-yellow flowers. It is a most profuse bloomer, the plant of it exhibited bearing twenty-two flowers. It is one of the most distinct of all the species, and will make a good contrast with the carmine-tinted kinds.

Adiantum Luddemannianum (Veitch).—A distinct, free-growing, crested variety of the common Maiden-hair Fern (A. capillus-Veneris), in which the ends of the fronds are curiously fasciated. The fronds are about a foot in length, the kidney-shaped pinnæ being curiously frilled.

Verbena The King (H. Eckford).—This is a bright rosy variety, the individual flowers of which measure nearly an inch across, and have a conspicuous white eye. It is a free grower, and flowers well.

Verbena George Brunning (H. Eckford).—This is a rich velvety-purple variety, having a conspicuous white eye, and, as shown, is certainly one of the finest in its class, the flowers being rich in colour and of good substance.

Floral Committee.—Messrs. Veitch & Son sent a group of new and rare plants, including Croton Lord Cairns, a kind with large tri-lobed or halberd-shaped leaves of a bright green colour spotted and mottled with golden-yellow; and Artocarpus laciniata metallica, an elegantly cut-leaved metallic-foliaged form of the Bread Fruit from the South Sea Islands, and to this a second-class certificate was awarded. In this group was likewise exhibited a flowering plant of the highly interesting Crotalaria Cunninghami, a shrubby Pea-flowered plant from Australia; it has oblong leaves densely covered with silvery hairs, and bears large Pea-shaped flowers of a bright green, a colour rarely seen in flowers, and one in this case said to become still brighter when the plant is dried for the herbarium. Mr. W. Bull staged a miscellaneous group of new and rare plants, including half-a-dozen plants of a distinct purple-leaved Bread Fruit named Artocarpus Cannonii. The leaves of this plant are irregularly lobed and of a shining bronzy-purple above and bright chocolate beneath. Associated with it were a couple of Orange Lilies of the L. tigrinum and L. bulbiferum type, and the following new hybrid Echeverias:—E. grandisepala, a strong-growing plant, with broad, concave, fleshy leaves, of a deep glaucous green suffused with red towards the margins; E. scaphylla, a glossy green-leaved plant, resembling Pachyphytum roseum in habit of growth, but with larger, flatter, and more densely-arranged foliage; E. mutabilis, similar to the last, but with flatter leaves, and of a lighter or more glaucous green colour; E. glauca metallica, a distinct strong-growing variety, with flattish, concave, bright green leaves, arranged in the form of a rosette; E. spathulata, a robust, glaucous plant, distinct and effective, closely resembling the glaucous Pachyphytum, but with foliage larger and flatter; E. carinata, a robust-growing plant of the metallica section, but with smaller foliage, and higher in colour, the deep reddish-purple leaves being boat-shaped, and shining as if varnished; E. rosea picta, a distinct plant, similar in habit to E. secunda, but having leaves larger and more incurved than those of that kind; the edges, too, are margined with bright reddish-crimson; it is a most effective plant, and will be very useful for edgings and succulent beds; and, finally, E. concava, a robust, rosette-shaped plant, the incurved concave foliage of which is irregularly notched or undulate along the margins, and of a bluish-glaucous colour.

Miscellaneous Subjects.—Mr. R. Dean sent an attractive variety of Phlox Drummondii named splendens grandiflora. It is a really effective decorative plant, the flowers of which are nearly circular in form, and of a rich crimson colour, having five conspicuous white blotches around the eye. The same exhibitor also sent cut specimens of French Marigolds, scarlet and yellow bedding Tropæolums, and Campanula Barrellierii, one of the best of all the Bell-flowers for pot culture. Mr. R. Parker sent leaves of the Carolina Poplar (Populus angulosa), a kind having crimson ribs and veins, and also golden-blotched leaves of the same colour. M. Louis Viewig, Wegeleben, near Queldinburgh, Prussia, sent cut specimens of a variety of Clianthus Dampieri, named Deutsche Flagge. Mr. W. Bowell, gardener to Sir W. H. Parker, Stawell House, Richmond, Surrey, sent a cut spike of a seedling hybrid Amaryllis, bearing fourteen flowers. The specimen sent was a yard in height, the individual flowers closely resembling those of A. Belladonna, but washed with yellow behind at the base. Mr. W. J. Searle, 6, Priam Place, Albion Road, Hammersmith, sent a well-flowered plant of the graceful-habited, shrubby Sedum populifolium, a variety having terminal or axillary clusters of white flowers, scented like those of Hawthorn. As a market plant, or for cut flowers, it deserves notice; it blooms most profusely. Mr. Charles Turner, of Slough, sent two very effective stands of Verbenas, including some very attractive varieties. The prevailing colours were dark blue, purple, lilac, mauve, scarlet, white, salmon, crimson, and maroon. The same exhibitor also had two new Roses in good condition. The first was H. P. Rev. J. B. Camm (Turner), a variety closely imbricated, full in form, and possessing a delicious Cabbage Rose odour. The second was Miss Hassard, a more open variety of a delicate Peach-blossom colour. Mr. Turner also sent a Pompone Dahlia, named Triumph, a kind perfect in form, and deep reddish-crimson in colour. A very showy stand of Verbenas also came from Mr. Eckford, gardener to Lord Radnor, Coleshill, Berks. The individual flowers of some of these varieties were nearly an inch in diameter, the colours being scarlet, purple, white, rose, and lilac. A new seedling Dahlia, named Bridesmaid, came from Mr. George Smith, Hedge Lane, Edmonton. It is of good form, and of a soft rosy-lilac colour. A new seedling yellow Clove Carnation, was furnished by Mr. M. Reed, gardener to J. H. Johnson, Esq., Mountains, Tonbridge. It is clear yellow in colour, as clear indeed as that of an Evening Primrose, and is deliciously perfumed. This deserves notice as a distinct and valuable novelty. Mr. J. S. Law, of South Lodge, Southgate, sent a flowering plant of Odontoglossum Lindleyanum.

Fruit.—Mr. W. Tillery, Welbeck, furnished the Welbeck Seedling Nectarine, a variety which resembles the Elruge in size and colour, but is said to be deeper coloured around the stone. Mr. W. Paul showed a yellow Plum, named Oullin's Golden Gage, and the same exhibitor contributed a collection of Apples, among which were the following:—Kerry Pippin, Oslin, Early Julien, Summer Golden Pippin, and Summer Thorle. In the same collection were good examples of Sugar-loaf, a Pearmain-shaped fruit, pale yellow in colour, speckled with green; Lord Suffield, a large and useful kitchen fruit; Duchess of Oldenburg, a large fruit, mottled and streaked with red on the sunny side; and a dish of Irish Peach (Early Crofton) of excellent quality. Mr. W. Forge, Walkergate, Beverley, Yorkshire, sent a seedling green-flesh Melon, of average merit; and Mr. J. Anderson, gardener to W. Hatton, Esq., Hill Grove Gardens, Kidderminster, showed a large-ribbed scarlet-fleshed variety, named Champion of England; it resembles Munro's Little Heath, but is more distinctly ribbed. Mr. R. Dean sent a new white Japanese Radish, named the Daicoon, and said to be quite distinct from the white Californian kind. It is tender, and excellent in flavour.

Pteris cretica for Rooms.—This is a most valuable Fern for room-culture, either in cases or exposed. It is a more beautiful Fern than its better known variegated form. Mr. Ouvrard, of Child's Hill, grows it in quantity for the London markets.—V.

Osage Orange Not Flowering.—Can any reader of The Garden inform me by what treatment the Osage Orange (Maclura aurantiaca) can be induced to bloom? I have a plant of it more than thirty years old which has never bloomed.—W. B.

Snowflake Potato.—One pound of this Potato, cut into thirty-six sets, potted and placed in the greenhouse three weeks, then planted out under cloches—two plants to a cloche—showed signs of disease in the haulm, so last week I dug them up and got from them 29 lbs. weight.—J. Maw, *Benthall Hall*.

Soils Benefited by Lime.—Is Lime good for garden ground on which vegetables are grown? I have always heard that it could be used with advantage on clay soil; but my land is very light.—Thomas Holloway, *Tittenhurst, Sunninghill.* [Lime will prove of the greatest value on your land, as we can say from personal experience of land of a very similar character.]

Second Crops of Broad Beans.—When Broad Beans have furnished their first crop, it is usual, I believe, to pull up the stalks and throw them on the rubbish heap. This should not, however, be done; for, if they are cut down to about 6 inches from the ground, they will push up three or four stems instead of one, and yield a good second crop.—E. G. Ottewell, *Royal Nursery, Penge.*

Easter Beurre in Worcestershire.—Dr. Roden, of Kidderminster, informs us that this fine Pear attains a high degree of perfection with him on an east wall near Kidderminster. It does not thrive so well on south walls. It also bears freely on standards, and on these the fruit is likewise good. Dr. Roden thinks this Pear has an undeservedly bad reputation as a fruit for our climate.

Sweet Pea and Convolvulus major Intermixed.—These make a charming combination, and when planted in rows form an excellent screen to hide objectionable objects. The closer the Pea-blossoms are gathered the longer will they continue to flower, but even if they fail by August they will hardly be missed, for the Convolvuluses—the lovely blossoms of which well deserve the title of "Morning Glory"—will entirely overgrow them.—J. Groom.

Sweet Peas.—I do not remember ever seeing these grow with more vigour and bloom more profusely than they have done this year. Invincible Scarlet, Captain Clarke, and The Queen ought to find a place in all collections. We have two short rows—one of Capt. Clarke and one of The Queen—with Nasturtiums intermixed, which have a very pretty effect.—R. Greenfield, *Priory Gardens.*

Gordius aquaticus.—To this curious creature, which is commonly known as the Hair-worm, I regret to see the term "Thread-worm" applied (p. 122), since that name is used ordinarily for the Oxyuris. Surely "A. M." must be referring to some other species of Gordius, when he gives the length "from 7 to 10 inches." I once had a specimen of G. aquaticus, found at Camberwell, which measured nearly 3 feet.—W. T. P.

Dr. Roden's Strawberries.—By a clerical error Dr. Roden is made to say (see p. 124) that he trenches his ground for British Queen 12½ feet deep! It should have been 2½ feet.

OBITUARY.

We have to record, with much regret, the death of Mr. Taylor, of the firm of Webber & Co., Covent Garden Market. He was an active member of the Pomological Society of London, and, more recently, of the Fruit Committee of the Royal Horticultural Society, to which, on account of his great knowledge of fruits, he often rendered essential service, for no man knew fruits, either home grown or exotic, better than he did. By nature quiet and retiring, but always obliging where he could be useful to others, he has left behind him many friends to regret his loss.

No. 197.] SATURDAY, AUG. 28, 1875. [Vol. VIII.

> "This is an art
> Which does mend nature: change it rather: but
> THE ART ITSELF IS NATURE."—*Shakespeare.*

SELECTING HARDY FLOWERS.

As many years ago as might be counted on the fingers of one hand, any enthusiast in hardy perennials might have travelled from country house to country house, and from one nursery to another, all over the kingdom, and, perhaps, not have seen twenty of his favourites. Nothing but bedding-out plants without end were seen, and of these the same varieties everywhere. Very few, even of the leading nurserymen (I speak from experience) kept such things as hardy plants. There was no demand for them, and, consequently, no supply. Now (and here I must thank Mr. Robinson for his works on the subject, which have greatly tended to change our ideas) there is a great demand, and, consequently, a large supply. The latter, perhaps, is almost too large, as we have not only old plants foisted on us under new names, but there are varieties without end of the same species, which, when procured and flowered, are found to possess little, or no, difference. Let any of your readers look at the descriptions of plants in many of the nurserymen's catalogues after a long dog-Latin name; why, if he went by those descriptions alone (and had the means to gratify his taste) he would probably purchase plants in unlimited numbers. The catalogues (after praising everything up to the skies), when they arrive at a thoroughly good subject, have so exhausted such terms as "superb," "magnificent," "remarkably beautiful," have to give us "a really fine," &c.; words failing them after such constant repetition. To those of your readers who are fond of hardy perennials, and wish to become the possessors of a collection which will endure almost for ever, my advice is, "Do not, if you can avoid it, buy plants from descriptions only; go round the nurserymen's gardens as often as time or inclination permits, and procure such subjects as you see, when in flower, are really worth taking home. Here I may say, that the wild garden is much superior to the old mixed border, and affords room for a great deal more taste and amusement, and, from the "Wild Garden," simple ways of adding great charms to any extent may easily be gathered. Fortunately, however, there is little difficulty in either the cultivation or propagation of hardy perennials, as a rule, though some of the Alpine and a few other subjects will require a little extra care in the preparation of suitable soil and choice of position. For any of your readers who have not the leisure or opportunity to go round and choose for themselves, I propose from time to time to mention in this paper any of the best hardy perennials which may be in bloom at that period in my own garden. I have constantly invested in plants which have not been true to name when they arrived, and have turned out, notwithstanding glowing descriptions, to be not worth cultivating; unfortunately, also, I have often had the same plants sent to me under different names, so that I shall only mention such plants as I believe are really valuable. But, still, I say (as many perennials do go under many names), if possible, see for yourselves the plants when in bloom. Another advantage of going personally to the nursery gardens is that you can select stronger plants; otherwise many arrive in such an unhealthy condition that the chances are altogether in favour of their dying off. Of course, the number of hardy perennials is almost unlimited, and we must put aside a great deal of weedy rubbish before coming on really valuable or distinct subjects. Then, again, there are very many first-class perennials which are unfitted for the borders, either from too straggling and rampant a habit, from their growing to too great a height, or from their requiring too much room from the large size of their leaves. These we shall of course relegate to the wild garden, about which I hope occasionally to have something more to say. Have not some of your readers been surprised (and perhaps a little annoyed) when speaking of hardy flowers to some intelligent person, to find what an erroneous impression that term conveys to him. He (*i.e.*, the intelligent person) will insist on only understanding hardy flowers to mean our native wildings, and those, moreover, which he sees in every field or hedgerow—if not an enthusiast, he will not have noticed any less common species. Of course, many of our hardy plants are really natives of the British Isles; but, the best of these are either very rare, or are confined to inaccessible places, where it is to be hoped they will long remain, sacred from the hands of the travelling botanist and the equally ruthless grasp of school children, when ravaging the country to tear up root and stem our best wild flowers for a paltry prize at a village flower show. OXON.

VINES OUT OF DOORS AT WOODSTOCK.

WHETHER the limestone formation that so abundantly exists at Woodstock, or other causes, specially favour the outdoor culture of the Vine, I cannot say; but certain it is that in few towns in the kingdom are so many healthy fruitful Vines seen on the sunny sides of houses as are now to be found in fruit in this ancient town. And yet Vine growers are never weary of assuring us that deep rich borders, made up of the very cream of old pastures, assisted with all sorts of stimulants, are essential to Vine culture. Perhaps we hardly understand how truly cosmopolitan the Vine is in its habits and tastes. Of course, it must have plenty of sun and root-warmth; but, given these, it seems difficult to find the soil in which it will not thrive. Judging by the conditions thought indispensable by our Grape cultivators, it would seem that the soil about Woodstock was quite unfit for Vine culture. A few generations ago it is probable that cultivable soil to the depth of only a few inches was to be found on the higher land, for one sees in all directions "stone-brash," as it is locally called, which here constitutes the sub-soil, used in all directions for building houses, walls, and for mending roads. This material is dug out in slabs of a few inches in thickness, and constitutes the bricks and the granite of the local population. The Vines that adorn the walls and cover the front of the old rectory house at Woodstock, and the skill of Mr. Robert Fenn in the preparation of home-made Grape wines are familiar to the entire population; amongst whom Mr. Fenn, and the kindly old rector, Mr. St. John, have resided for upwards of a generation. These examples have been the means of inducing one-half of the population to grow their own Grapes, and probably to make their own wine. The old Vines at the rectory consist of the Esperione and the Royal Muscadine, the very best from which to make home-made wine, as they are robust growers, almost certain croppers, and produce Grapes having the flavour so essential for the production of good wines. Other growers, however, have taken a wider range, and on one house may be seen a fine healthy Black Hamburgh, on another a Black Cluster, and on a third a huge Muscat of Alexandria, but the latter never ripens its crop, although its fruit in a good season is much prized for giving the Muscat flavour to home-made wines. Whilst the sub-soil here is so apparently ill adapted for Vine culture, it is at least certain that its stony character tends to store up the sun's rays for the benefit of the roots, in the same way that ingenious sub-tropical gardeners have succeeded in husbanding the solar heat for the benefit of the roots of their tender plants. This may, to some extent, account for the apparent forwardness of the crops, and the comparative freedom from mildew which they enjoy. Apart from the economical results, however, these masses of green foliage, covering here and there the white of monotonous buildings, give a cooling freshness and relief that cannot be too highly estimated. Mr. Fenn's ability, as a wine producer, has often received recognition from public bodies, his last being a gold medal awarded to him by the wine jurers, appointed by the Exhibition Commissioners at Kensington, in 1874, to report upon the respective merits of light wines. A. D.

Pruning Clematises.—Mr. Jackman is certainly entitled to attention when he furnishes the rules for growing his own hybrid Clematises; nevertheless, a little north country experience may be taken for what it is worth. For several seasons previous to last winter I have followed Mr. Jackman's advice to the letter in pruning down low, and manuring liberally. The result was very satisfactory as regards individual blooms, but the flowers were late and comparatively few. Last season I did not prune at all, and whereas, at this date last year hardly a flower was expanded, the plants are now covered with bloom. The finest decorative effect I have ever seen with these beautiful flowers is produced by two plants, respectively Jackmani and rubra violacea, which have for some years grown unrestrained on the garden wall at Kilkerran, in Ayrshire. The effect is superb, and, when I last saw them a fortnight ago, there must have been many thousands of blossoms out together. Therefore, for decorative purposes, at all events in a moist climate, I should venture to recommend little or no use of the knife, and generous treatment.—Salmoniceps.

Barren White Lilies.—The common white Lilies exhibit this season a malformation which I do not recollect to have seen before. The flower-stalks are prolonged, and, instead of bearing a perfect flower, are clothed throughout their length with imperfect white sepals. The reproductive organs are entirely absent. Nearly half the Lilies in my garden are thus deformed, and present the appearance of a gigantic white paint brush or plume. As is the case with many other sexless plants, as Hydrangeas, &c., the duration of the bloom, such as it is, is very much prolonged, and these strange-looking torches are still fresh, while the properly-behaved blossoms have passed away long ago. Is this a common phenomenon with these Lilies? I may add that the season here has not, as in the south, been a wet one. On the contrary, sun and rain have been well balanced, and crops of every description are unusually abundant. —H. M., *Wigtonshire.*

Phloxes Worth Growing.—Of Phloxes I can recommend a lovely rich salmon-flamed-scarlet kind called Lothair, also a white one with a crimson eye, named La Candeur; A. F. Barron, mauve, with a crimson eye; and Countess of Breadalbane, a very deep purple. Of the young growth of these I make cuttings in spring, strike them in separate thumb pots, and plant them, as soon as they are rooted, 6 inches apart in the open ground; they bloom in the autumn, and are fit to move into the perennial border by the end of September. Plants of Lothair thus treated, only a year and three months old, have heads of bloom fully 2 feet through after tying them up, and form quite the most brilliant pieces of colour in a garden which may be said to be all colour. La Candeur is the best white kind for the perennial border, as it increases rapidly, and makes a very large head of bloom, which is uninjured by sun, wind, or rain. Phloxes are very brittle at the root, and should be tied to strong sticks when they are a foot high. Phlox Miss Robertson, one of the early-flowering varieties, is the finest white yet produced.—Frank Miles, *Bingham, Notts.*

Successional Arrangement of Spring Flowers.—The best arrangement of this kind which I saw last spring occurred in some beds in which the single and double Snowdrops were the first to come into bloom; these were followed by the white, yellow, and purple Crocus, which, in their turn, were succeeded by Hyacinths. A mixture of Tulips and Forget-me-nots came next, and the final display was made with double German Wallflowers and Alyssum saxatile. From first to last the whole beds were in beautiful condition, from the middle of February until the end of May, each variety of bulb and plant being equally distributed over the beds. Had all come up and bloomed at once they would have been very much crowded; but, coming up one after the other, nothing of the sort happened, and the effect produced was superior to anything of the kind that I had previously seen.—J. Muir.

Culture and Uses of the Fruiting Duckweed (Nertera depressa).—I grow this in 3-inch pots; in September the plant is divided into three, which are potted, in a light sandy compost, and then plunged in coal-ashes, in a cold frame, a position in which I leave them till the time for planting out has arrived. The frame should be fully exposed, for the plants, if grown in the shade, and subsequently planted out in the full heat of the sun, are liable to suffer; otherwise, it is a plant that would luxuriate in a rather damp shady position. I find that it is remarkably partial to water. During the constant rains some little time back it flourished amazingly; but about a week after the weather had changed, I found, to my surprise, that about a dozen of the plants were suffering from want of water—some, in fact, had shrivelled up to nothing, and broke to pieces when I touched them. I happened to have other plants in reserve which I put in their places, and since then I have been careful to supply water regularly; under this treatment they have done exceedingly well ever since. In my opinion, N. depressa is a grand addition to the list of carpet bedding-plants. I have planted it in a bed of Sedum glaucum, and the little round clusters of berries slightly raised above the Sedums produce an effect that is admired by every person who sees it. All lovers of carpet-bedding should get a stock of this plant at once.—G. Legg, *Cleveland House, Clapham Park.*

NOTES OF THE WEEK.

—— The papers have discovered that there are many consolations left to Londoners compelled to stay in town at this season. They might speak, in addition, of the charms of the London parks and gardens, in this and the following month; of the mellowing beauty of the trees; the freshness of the turf from the early autumn rains; the brightness of the bedding flowers only seen so poorly during the season; and the richness and stately grace of the fine-foliaged plants. On the whole, the parks and public gardens of London are now more beautiful than at any other time, and simply because autumnal flowers are principally cultivated therein.

—— Specimens of the true old Clove Pink, a plant nearly lost to gardens, have been sent to us by Mr. Thomas Williams, Bath Lodge, Ormskirk. It is bright reddish-crimson in colour, a profuse bloomer, and deliciously fragrant. We need scarcely add that it is very different from the Clove Carnation.

—— We are pleased to notice the old Persicaria now used here and there in the London parks; it has a pretty effect in open spaces in shrubberies and similar situations.

—— Tigridia pavonia Wheeleri is a flower of magnificent colour, which ought to be known to all lovers of bulbs. We saw it lately at the Wellington Nurseries, growing near the better known form of which it is a variety, and thought it one of the most striking and brilliant of all flowers.

—— The largest and most delicately flavoured and juicy Oranges we have tasted at this season of the year are now supplied to Covent Garden from Naples. Good as Oranges are at all times, such noble fruit as we allude to are particularly welcome in the month of August; we trust, therefore, the Naples growers may increase and cheapen their supply.

—— One of the large sub-tropical beds in Hyde Park is this season prettily margined with the golden variegated Coltsfoot, and the same plant is also used, with equally good effect, in Victoria Park. If re-planted carefully every year, and contrasted with Iresine, Coleus, or scarlet Pelargoniums, few plants can equal this as a bold and striking plant for the margins of large beds or borders.

—— A fine spike of that best of Tiger Lilies, Lilium tigrinum splendens, was sent to us the other day by the Colchester Bulb Company. It stood upwards of 4 feet in height, and bore seventeen flowers and buds, which, when open, are brilliant orange-scarlet, spotted with jet black. Along with it also came a boxful of blooms of the Golden-rayed Lily of Japan (L. auratum), in order to show the difference, both in colour and size, that exists among them, and also the necessity of constant selection in order to prevent deterioration. Some were small and comparatively worthless; others were large and strikingly beautiful.

—— If the masses of annuals which we are now glad to see so well employed to embellish the once naked earth of the half-furnished shrubberies in the parks were arranged somewhat differently it would be a gain for horticulture and the park-frequenting public. When a general mixture of good annuals is sown, certain strong and rampant types are sure to overcome the others, and in the end to produce a sameness of effect. Judiciously chosen mixtures are good but each shrubbery or belt should be sown with a different mixture if we are to have good results from the practice. Sometimes, too, it would be best to sow one kind only, as Mignonette. The difference between carrying out this desirable practice of wild gardening with annuals thoughtfully and tastefully, and merely sowing a rough mixture of annuals everywhere, is very great indeed.

—— An interesting discovery has been recently made during excavations for a new tidal basin at the Surrey Commercial Docks. On penetrating some 6 feet below the surface, the workmen everywhere came across a subterranean forest bed, consisting of peat with trunks of trees, for the most part still standing erect. All are of the species still inhabiting Britain; the Oak, Alder, and Willow are apparently most abundant. The trees are not mineralised, but retain their vegetable character, except that they are thoroughly saturated with water. No doubt is entertained that the bed thus exposed is a continuation of the old buried forest, of wide extent, which has on several recent occasions been brought to daylight on both sides of the Thames, notably at Walthamstow in the year 1869, in excavating for the East London Waterworks; at Plumstead in 1862-3, in making the southern outfall sewer; and a few weeks since at Westminster, on the site of the new Aquarium and Winter Garden. In each instance the forest-bed is found buried beneath the marsh clay, showing that the land has sunk below the tidal level since the forest flourished.

—— The first portion of the "Dictionary of English Plant-names," by Messrs. Britten and Holland, is going through the press. Any such names will be thankfully received by the former gentleman; his address is, Mr. James Britten, British Museum.

REMARKABLE GARDENS OF PORTUGAL.

LUMIAR.

A few miles distant from Lisbon, but further inland, we meet with a little town called Lumiar, which most likely would be unknown and seldom visited by people of the capital had not the palace of the Duke of Palmella, with its beautiful gardens, rescued it from oblivion and given it a reputation that has extended beyond the frontiers of Portugal. Some forty years ago the grandfather of the present Duchess laid the foundation of this now lovely spot. At that time gardening was in its infancy in Portugal, and it is little to be wondered at that Lumiar soon occupied the foremost position amongst Portuguese gardens, and became more and more a model of good taste in the choice and arrangement of exotic plants. The example thus set was soon followed, and here and there beautiful gardens were created under all the conditions necessary to success. Lumiar, however, has, throughout, maintained the lead, and if some day a history of the rise and progress of Portuguese horticulture be written, it may well be expected that neither the influence of these gardens in times past nor their present admirable condition will be forgotten. Much of this is owing to the lively interest which the present Duke and Duchess take in horticultural matters, but I must not, as an act of justice, forget to give due praise to Mr. Jacob Weiss, who, during a career of upwards of thirty years, has been employed as head gardener on the estate, and who, during that period, has shown an amount of zeal and sound knowledge that has had much to do with the present satisfactory state of affairs. No year has passed that he has not introduced new or rare plants, or made some noteworthy improvements at Lumiar and the other ducal gardens, and he may well be considered the first amongst Portuguese gardeners. The late Dr. Welwitsch was for some time in the former Duke's service before leaving for Africa, and I felt interested the other day in looking through an herbarium of cultivated plants, the result of his stay in these gardens, as it gave me a good idea of the riches of the exotic flora at that period, and permitted a comparison being made between the state of the gardens in past and present times. Formerly, a good many Cape and Australian shrubs and smaller trees were cultivated here, but the more tender varieties, especially those belonging to the Leguminosæ, Ericaceæ, and Proteaceæ, have disappeared, owing to the noxious influences of calcareous water. Their places have been filled by still more showy, though not less interesting, plants, and in reviewing Lumiar's rich and luxuriant vegetation I shall begin with the unrivalled collection of

Palms.

These, I may state, are unrivalled, when the number of species and the beauty of the specimens are considered. The majority of these were planted in 1856, so that only nineteen years were required to make out of small nursery plants these stout robust specimens, which prove that many Palms, even from hotter climates, are quite willing to adopt Portugal as their second fatherland if they are well cared for. The specimen of Jubæa spectabilis at Lumiar is, in height, inferior to that at Necessidades, upon which, on a former occasion, I was permitted to report. The stem is only 30 feet high, and measures in circumference at the base 14½ feet. Of Chamærops Ghiesbreghtii, the height of the stem is about 13 feet; the circumference at the base about 3 feet 3 inches; the height of Chamærops excelsa is between 20 and 21 feet, and its circumference about 3 feet 9 inches. This specimen produces every year a great many fertile seeds, and we may consider it the ancestor of the hundreds of young plants in different stages of growth which now adorn a large number of the gardens, both public and private, in Portugal. That Palms are inclined, even in cultivation, to vary, may be considered certain after a close observation of this plant and its progeny, for a great many trees raised from this source differ in habit, vigour of growth, and even in the more or less compact texture of their leaves. Whether Chamærops excelsa and C. Fortunei really prove to be two good species, or whether the latter may be considered a distinct variety of the former, is perhaps more a matter of fancy than a scientific question; at all events, being placed, as in these gardens, side by side, and being almost equal in strength, it is very difficult to say where the specific difference in them lies. Livistona sinensis (Corypha) has a stem 13 feet in height, and a circumference at the base of 4 feet; with its large and beautiful leaves our Livistona covers a surface of nearly 45 feet in circumference. Plants of Livistona australis (Corypha) are frequently met with in Lumiar, but being planted much later than the others, the specimens cannot yet boast of such dimensions. Phœnix leonensis, Lodd. (P. spinosa) is a very graceful, rather slender-growing kind, approaching somewhat in habit to the P. reclinata; the stem measures in height 13 feet, to which the almost erect leaves add another 9 feet 6 inches. Copernicia sp. Bahia is a very low growing kind, of compact habit and singular beauty; it forms a large tuft, and increases considerably from year to year. Rhapis sp. is very distinct from R. flabelliformis, which here, as well as in Necessidades, does not succeed well; an unnamed species, perhaps R. aspera, on the contrary, seems to be quite at home in these gardens, and may justly be considered one of the finest dwarf Palms. The above mentioned species form a large group, planted out with such skill that one can look at them taken as a whole, or contemplate their beauty separately. In either case, the visitor will acknowledge that it would be difficult to find many other such magnificent collections. Fine plants of Chamærops tomentosa, Seaforthia elegans, and Sabal umbraculifera, are growing in other parts of Lumiar; not to speak of Chamærops humilis and Phœnix dactylifera, which are too common here to deserve any special mention. Of late, some strong plants of Oreodoxa regia have arrived from Rio de Janeiro; but I rather doubt whether the species will do well in this climate, even in such sheltered spots as can be found in these gardens. Next to the Palms, the Dracænas claim our attention. A few months ago, a magnificent Dracæna indivisa (the true one), of a height of more than 14 feet 6 inches was in full bloom, and was, at the same time, laden with red berries. Even farther north, this species does exceedingly well with us; and it is to be hoped that it will find a place generally in our gardens. One of the oldest, if not the strongest plant in Europe, of the Canary Islands' species, Dracæna Draco, is to be seen in Lumiar. Its trunk measures at the base nearly 13 feet. The height of the whole plant is about 40 feet, and with its six principal branches it covers a surface of more than 45 feet. Lightning has destroyed the regular form of its crown, tearing off two of the principal branches; and, in order to preserve it from further damage, it has been surrounded by a strong iron trellis, in which the strongest branches are supported. This kind of cupola, with its curved and ramified lines, has a good effect, especially on a hot summer's day, when its shade invites the visitor to stay beneath it. Other Dracænas and Cordylines, as Dracæna australis rubra and Cordyline cannæfolia, fragrans (a New Zealand species), and brasiliensis, as well as Dracæna heliconiæfolia, are scattered here in many places where beauty of foliage or elegance of habit are required for producing contrasts. Strelitzia angusta, with a stem 22 feet high, its enormous leaves, and its curiously-shaped flowers, is a good example of a gigantic Monocotyledon. It is surrounded by four or five other species of these interesting Cape plants, as Strelitzia Reginæ, Bonapartea juncea, &c., are still rare, and highly appreciated plants in our gardens; I remember the fine collection of them in the succulent-house at Kew, but, to admire their full beauty and value, we must see them in Lumiar, where they are growing in the open air, just as well as in their own country. Bonapartea longifolia is perfect, followed by B. gracilis, with two large heads. Bonapartea juncea stands first in flower, its stalk measuring almost 6½ feet. It promises to ripen seeds, which would be an occurrence of much interest. Last, but not least, comes B. glauca, which is represented by several strong specimens, worthy of all the admiration that can be bestowed on them. Another rare plant of the same family is Pincenectitia tuberculata, of which Lumiar possesses one representative, with a trunk measuring at the base nearly 5 feet in circumference, and upwards of 3 feet in height. It had just finished flowering, the stalk showing a height of about 4 feet. The Agaves and Aloes, though well represented here, shall be spoken of in the next article, in which I shall describe the gardens of Cascaes.

Conifers.

Glancing at the Coniferous tribe, the Norfolk Pine, Araucaria excelsa, has become a favourite tree in this country, where it was introduced about thirty-five years ago, and Lumiar is the place where the oldest and strongest plants of it can be found. In 1841 two young specimens were planted, and in the lapse of time have arrived at enormous dimensions. One measures upwards of 78 feet, the other considerably over 80 feet in height. Some ten years ago they bore the first cones, but only since 1873 have they borne good seeds. I hope their fertility will increase from year to year, and then there is every chance of the two Lumiar Araucarias boasting of a very numerous offspring. The largest of them has a stem nearly 40 inches in diameter, and covers, with its lowest branches reaching to the soil, an area of about 45 feet. Araucaria braziliensis is frequently met with, the finest specimen showing a height of about 58 feet. Those next to this species, namely, A. imbricata and A. Bidwillii show a much slower growth, and have even a sickly appearance—another proof that plants of the same genus, and often from the same country, require quite different conditions of climate and soil to become vigorous and healthy. Araucaria Rulei is not doing much better than the two last-mentioned, but, of Araucaria Cookii and Cunninghami, fine and healthy specimens are to be found here, The genus Taxodium is represented by a splendid specimen of Taxodium sempervirens, 80 feet high, with a circumference of 9 feet at the base. The famous Californian Pine, Wellingtonia gigantea, does not seem to flourish in the Portuguese climate; there has even been a controversy in a Portuguese horticultural journal respecting the way of growing it; and I can at least say that the specimens I saw, both in the north and south of this country, were in every respect inferior to those I often had occasion to admire in different localities of England, and even Germany. Nevertheless, there is one plant of it at Lumiar which already forms a fine tree, and promises well for the future. Southern Europe itself offers us in the Spanish Abies Pinsapo one of the finest and fittest Coniferous plants for this country, and really I must confess that well-grown specimens of this tree may successfully compete with a good many of its exotic congeners. Beautiful plants of this Abies are not wanting in Lumiar; but, strange to say, my efforts to obtain seeds of it directly from Spain proved unsuccessful; but, in Lumiar, I was fortunate enough to get a fair quantity of these seeds, which were much sought after by some friends of mine in England and Germany. A few Dammaras and Podocarpus, and, in the first instance, Dammara robusta, from Australia, and Podocarpus elongatus, from the Cape of Good Hope, complete an imperfect list of the finest and most remarkable Coniferous plants at Lumiar. When, at some future time, I compile, for the use of this country, a work on the rich exotic flora of Portugal, I shall be enabled to enumerate more fully the rare and beautiful plants that may be met with in these gardens; but a few more striking examples of Lumiar's luxuriant vegetation may be given here. Quercus insignis, from Mexico, is represented by a tree, which is really a magnificent object as regards size and general appearance. Acacia heterophylla, from Australia, with a stem about 95 feet high, cannot be overlooked, especially when laden with its millions of bright yellow flowers, for then it is indeed a magnificent sight. Specimens of the Jacaranda mimosæfolia are flowering and seeding freely; they are so graceful in foliage and showy with their large blue-violet flowers that one cannot help wishing to see this species more frequently cultivated. Fagus asplenifolia is, probably, well-known in English gardens; to me it was a most charming novelty, and worthy of being ranked amongst the finest foliage plants. That even Franciscea latifolia would appear in such perfection as a flowering plant under the Lisbon climate, I had not even supposed, before one of my latest visits to Lumiar. But this, as well as the excellent condition in which Camellias, Rhododendrons, Azaleas, and Gardenias are here found, must, to a great extent, be attributed to the excellent shelter and shade afforded by the high and lofty trees of more common species, such as Æsculus Hippocastanum, Fagus sylvatica, F. purpurea, Ulmus latifolia, Sterculia platanifolia, Grevillea robusta, and several species of Casuarina. Creepers of all kinds are covering the walls and iron fences, and amongst them Bougainvillea brasiliensis—obtained here from seed, and therefore justly called Bougainvillea Palmella—is a fine variety. This ducal country-seat was not, at first, so large as it is now; actually it is composed of four small estates, measuring, perhaps, in all, some 125 acres. Terraces with beautiful views, and gay flower parterres alternate here with lovely valleys and picturesque slopes; charming grottoes and lakes, where large clusters of Bambusa gracilis and B. nigra are plentiful, are conspicuous in the general arrangement, which has been executed with much skill. The glass-houses are not of much consequence in comparison with the plants grown in the open air. Nevertheless, I cannot pass them over in silence, as they afford me an opportunity of speaking of the very successful results which Mr. Weiss has obtained by cross-fertilisation in the Begonia and Caladium tribe. Begonias abound here, and there are several Lumiar varieties which might compete successfully with Belgian, English, or German Begonia hybrids. As for the Caladiums, he has obtained still more satisfactory results, and many of his finest plants are now cultivated in other countries, though very likely not under Portuguese names. Last year I was very much struck by the sight of twelve fine hybrid Caladiums, not so much distinguished by their colour as by the peculiar shape of their leaves. Mr. Weiss had the kindness to inform me that they were the result of cross-hybridisation between Caladium Chantini (male) and a Brazilian species of Alocasia (female plant). They were so beautiful, that I persuaded the head gardener to allow me to find a purchaser for them in England, where such novelties are always highly appreciated. This granted, I wrote to Mr. William Bull, of Chelsea, and sent him, at the same time, a carefully dried leaf of each variety. That gentleman, in a very kind reply, asked me to observe that my supposed hybrids between two genera of Aroids—viz., Caladium and Alocasia—were, in fact, the offspring of two true Caladiums; that the female plant alluded to was not an Alocasia at all; and that this substitution was owing to a mistake of Professor Koch, who wrongly named it Alocasia argyroneura, when it should properly have been named Caladium Schröderii. Now I am very far from doubting such an authority as that of Mr. Bull, and I feel very grateful to him for his kind information; I must, therefore, ask his pardon for saying that I am not as yet convinced that Professor Koch's wrongly-named Alocasia argyroneura and the Brazilian Alocasia from Lumiar will prove to be identical. The future will show if I am wrong; and I shall content myself with observing that these fine plants—the more interesting, from a botanical point of view, if my supposition of a cross hybridisation between two genera proves true—have become the property of Messrs. Veitch, of Chelsea; and I leave it to these gentlemen, far more competent than I, to point out the beauty of their new Portuguese acquisition.

CASCAES.

Let me now retrace my steps, and follow the winding stream of the Tejo, until we arrive at another small market town, called Cascaes, situated on the shores of the Atlantic Ocean. Here the duke has another garden, the vegetation of which differs entirely from that of Lumiar. Its features are striking, and very different from what one might expect to see in a place where the heavy winds, impregnated with sea salt, do so much injury to the tender plants. It is the grouping of the numerous kinds of plants growing here which forms one of the principal attractions of this charming place. Good taste in such an arrangement is always required, but not always sufficient. Here the geographical distribution of plants has been consulted with great care; and the poor nature of the land, which is sandy and rocky, as well as the unprotected situation of the ground, has not been overlooked. The result has been that Mr. Jacob Weiss has, under the direct orders of the duchess, been enabled to establish such an interesting botanical collection, that severer and far more competent critics than the writer would acknowledge its great merits. Good drawings and clever descriptions of the flora of the Canary islands have given me a more or less exact idea of the picturesque vegetation of that group, and I easily recognised in these gardens some excellent imitations of Canary Island scenery. Hundreds and hundreds of strong specimen plants of Dracæna draco have taken up their residence between grotesquely-formed pieces of rock; and, though still very much behind their ancestor of Orotava, they promise to rival in time that historical specimen in size and beauty. The succulent Euphorbias come next under consideration. Fine and healthy plants of Euphorbia canariensis, E. piscatoria, E. balsamifera, and E. atro-purpurea seem to have formed companionship with still more southern species—as, for instance, Euphorbia rhipsaloides (Welw.), from tropical Africa. The showy Echiums, in four or five species, are planted out in large masses, here and there broken up by the fine Composite Gonospermum fruticosum, with its graceful foliage, and a not less attractive Rubiaceous species of Phyllis. Other Canarian species, such as Kleinia neriifolia, Sempervivum canariense, Geranium anemonifolium, and the not very common shrub Bosea Yervamora, are frequent here, and to this may be added the beautiful Azorian species, Campanula nivalis, which it is quite proper to figure in this island group. I should, perhaps, first of all have spoken of the flora of Australia, as this part of the globe furnishes the most important trees for increasing the number of subjects in Portugal's arboretum; indeed, since Australian trees have been introduced into this country, there are good reasons for believing that, by and by, its forests will exercise a beneficial influence upon this country, by increasing what it is most in want of—the supply of moisture. The Australian trees have rendered double service to the gardens of Cascaes—they withstood, from the first, the heavy ocean gales, and they attained, in a comparatively short time, enormous dimensions, so that they have become the most valuable protectors of more tender varieties of shrubs and trees. In nearly all parts of the kingdom the Eucalyptus globulus has of late been most highly thought of, and, though in the immediate vicinity of the sea, the leaves are burnt up by the salt-laden breezes, the rapid and vigorous growth of the famous Gum tree, which is represented here by several hundred fine specimens, is not retarded. However, I must add that it is necessary to plant them thickly, and to prune them from time to time, otherwise the wind will break the stems like pieces of glass. This tree does so well in Portugal that there is a certain prejudice against other still more precious species of the same genus. Such prejudices, however, do not exist in the ducal gardens, where fine specimens of Eucalyptus Stuartii, E. obliqua, E. viminalis, E. piperita, E. robusta, and E. marginata are to be found. Australian Acacias are also represented, several species growing here most satisfactorily. Of these, Acacia Sophoræ proves the hardiest for this neighbourhood, and grows into bushy plants, which form excellent hedges and shelter. In some respects, the Myoporum acuminatum is superior to the Eucalyptus and Acacias, its branches reaching the soil, and its leaves not being injured by the sea winds. This is one of our most valuable acquisitions, if we do not merely look to its utility as a timber tree, but to the qualities that adapt it to bad conditions of soil and climate. The beauty of the Myoporum acuminatum is no less to be admired and is fully displayed in these gardens. Groups of Casuarinas afford still more shelter, and, mixed with other arborescent subjects, these trees—not over beautiful in themselves—are of high value to the landscape gardener. When first visiting this place, I noticed a fine sloping hill of considerable extent, where some deep trenching had just been executed with much care. This locality was destined to receive a great many young plants of Araucaria excelsa, raised from seeds, which, as I have already mentioned, the two large Araucaria excelsa in Lumiar produced during the last two years. On my return to Cascaes, a short time ago, they were planted out, and seemed to be satisfied with their new quarters; and it struck me that they were composed of two entirely different batches, some plants not showing so much life and vigour as others. When I questioned Mr. Weiss about it, he informed me that all were sown at the same time and in the same soil, but not in the same locality—part of them in Lumiar, the others in Cascaes. Now the latter seemed to be much the stronger, though since their germination they had been exposed here to the Atlantic winds. To account for this it must be borne in mind that the original country of this species was Norfolk Island, the meteorological conditions of which probably correspond somewhat closely with those of the Portuguese coast. The other Coniferous plants of this garden include the following: Cupressus horizontalis, C. Tournefortii and C. Lambertiana. These have proved to be quite hardy here, and, with their dark-shading, contrast in a striking manner with the surrounding vegetation. The Portuguese Cedar, Cupressus glauca, from Goa, requires more shelter, and has been successfully planted in the lower parts of the Cascaes garden. Fine specimen plants of Pinus insignis and Cephalotaxus Fortunei can never be overlooked, and large groups of Biota aurea show here, as elsewhere, their ornamental value. One feels rather surprised that Dracæna australis and D. indivisa grow here just as well as in Lumiar, some of them already attaining considerable dimensions, their leaves being in no way injured by the winds. When laying out this garden, it was resolved by the proprietor to border the two principal walks with Palms; this was not, however, to be easily accomplished, as, in the first place, a great many plants were required, and it was uncertain what species would be suitable for this rather costly and hazardous experiment. The results, nevertheless, have been successful, and the plants have attained large proportions and show great vigour. In a few years' time, Cascaes will probably be the only garden in Europe which can boast of splendid Palm avenues. The first one is formed by Livistona australis, the plants already showing much beauty. Chamærops excelsa, with two large standard plants (each stem measuring upwards of 7 feet in height), at the beginning of the second walk, is not less remarkable, and a pleasing contrast is obtained by the use of the elegant Phœnix dactylifera amidst the stiffer specimens of Chamærops excelsa. Single plants—all the finer and stronger for their isolation—of Livistona sinensis, Sabal umbraculifera, Phœnix reclinata, and Jubæa spectabilis welcome the visitor in different places, where such specimens can produce the best effect. A very useful tree for these parts is Eriobotrya japonica; it grows well in the worst soil, and its large and brilliant leaves are not in the least disfigured by the sea-winds. Our Eriobotrya is covering large areas of soil, and when the hundreds of trees expand their sweet-scented flowers and delight the eye with their bright yellow fronds, the merits of this representative of the Japanese flora will not be questioned.

Miscellaneous Plants.

A still more striking plant, from Asia, is Acacia eburnia. The plant is literally covered with long and vigorous spines of a really ivory-white colour; these, side by side with the graceful foliage of a light green and the dark yellow flowers, produce an effect that need not fear rivalry. America's rich flora is well represented here, considering the somewhat peculiar conditions of Cascaes, by fine foliage plants, most of them belonging to the Monocotyledons. Specimens of the genus Dasylirion are numerous, and show us strong plants of D. glaucum, D. gracile, and D. longifolium, the latter with a high flower-stalk. Bromelia Caratus is not inferior to the Dasylirions, for the open air; it attains enormous proportions, and seems to glory in the wealth of its magnificent dark leaves. The Yuccas, as for instance Yucca gloriosa, Y. Parmentieri and Y. filamentosa are equally well cared for, another species, Yucca aloifolia, having become even a sub-spontaneous species of Portugal's flora, on the sea-shore of Cascaes. Agaves are always worthy of attention, A. coccinea and A. Verschaffeltii especially so, when they are represented by such fine specimens as those at Cascaes. A. americana, in its typical form, is almost too common in this country to deserve mention here; but the variegated kind occupies, with hundreds of vigorous specimens, a considerable space on the rocky declivities near the main road. There its shining leaves contrast well with the ever fresh-looking carpet, composed of several species of Mesembryanthemum, which produce all the year round abundance of red and yellow flowers. I must add that the A. americana fol. var. has become, just as well as the type, a sub-spontaneous Portuguese species. Not far from Cascaes, there are spots where this variety is growing in thousands of plants. Fourcroyas, as F. tuberosa and F. longæva, and several varieties of the Cactus tribe, add to the charming variety of the place; and the gigantic Amaryllidaceous plant from Australia, Doryanthes excelsa, seems to delight in the society of the independent Americans. Of late, some species of Eryngium, from South America, such as Eryngium pandanifolium, eburneum, Lasscanyii, and giganteum, have produced a certain sensation in the horticultural world; and, indeed, when they are under good treatment, one can easily take them for showy Monocotyledons. A few years ago, the Emperor of the Brazils was very much surprised when he was informed that they belonged to the family of Carrots. The gardener of Cascaes has made good use of these Eryngiums, and their behaviour is such that they are not at all out of place in this select American circle, which is completed by a few African specimens. I should never have thought that Sanseviera cylindrica would succeed in such an exposed place; however I was obliged to change my opinion on learning that two or three robust plants had already passed a winter in Cascaes. Another interesting plant I discovered in an African Aloe. This had been introduced from tropical Africa by the late Dr. Welwitsch, and was to me quite new. In habit and shape of the leaves it resembles Dracæna Draco; but its colour is a lighter one. Its most characteristic feature is in the points of the leaves, which are of a bright coral red. Considering the country where it came from, I think that it will turn out to be a good variety. At all events, it is a very fine-looking plant, which ought to be cultivated in all the larger collection of succulents. Southern Europe itself is so rich in species for ornamental purposes, and its frutescent flora offers so much attraction and variety, that we should have felt quite disappointed if Lusitania had not furnished a large contingent to the ducal gardens. During our first visit, in the month of March, some Portuguese groups were really charming. The Leguminosæ, as different species of Genista, Coronilla, Cytisus, and Spartium, were prevalent, all in full golden bloom; and, to increase the effect, Rosmarinus officinalis, and two species of Lavandula, with their blue flowers, surrounded the yellow, and mingled their balsamic scent with the fresh sea-air. The Cisti, in four or five species, with their white and red flowers, had a beautiful appearance; and even the commonest of them all—a perfect scourge in some parts of the kingdom—Cistus ladaniferus, must not be disregarded, with its large and generally spotted flowers. Empetrum album, which always grows on the sea-shore, forms compact little bushes; and, in the autumn, when it is laden with its ivory-white berries, of a sub-acid, agreeable taste, it is still more attractive.

Laurustinuses and similar Plants.

The Viburnum Tinus, well known in English gardens, large and small, has not far to travel from its natural habitat to Cascaes. The brilliant leaves of this plant are associated with two Madeira inhabitants, viz., Picconia excelsa and Ilex Perado. That Roses would succeed in the vicinity of the sea I had not expected, and was delighted to find that the Queen of flowers, even here, sustained its reputation, a great many varieties being still in blossom, and exhaling a delicious odour. These beds of Roses were bordered with double-flowered Pelargoniums, and here and there interwoven with the violet tints of Polygala myrtifolia and P. speciosa, or with the white flowers of Pittosporum Tobira and P. umbellatum. Brachychiton populneum, Colletia horrida, and a few species of Solanum were remarkable here as foliage plants. Deciduous trees and shrubs are in the minority, attempts to cultivate most varieties proving a failure. Cercis Siliquastrum, however, still gives some promise of ultimate success, and I think that Broussonetia papyrifera and Celtis australis will eventually be acclimatised, and be useful in producing refreshing shade, the constant want of a country like this. Satisfactory as a visit to Cascaes must prove to the botanist or horticulturist, it has fully as many charms for the artist, or for the general lover of natural scenery. Hills and vales abound in this favoured spot. In some sequestered nooks we can hardly realise the fact that within a few minutes' walk the Atlantic waves are sullenly rolling in upon the rock-bound coast; whilst, from other and more elevated portions of the estate, the ocean in all its grandeur breaks upon the view—at one time still and unruffled as an inland mill-pond, and perhaps reflecting the glories of a summer sunset; at another, angered into violent action by the tyranny of a western gale, to which the loftier trees must bend their heads if they fain would go unscathed. Charming and cunningly-concealed grottoes, covered with Ferns, and bordered by purling rivulets, abound here, a Gramineous vegetation, including such varieties as Arundo conspicua and Gynerium argenteum, inviting one to rest awhile amidst it, whilst undulating, well-kept walks intersect the estate, and are in themselves, a proof of the rigid supervision exercised over the whole place. Large plantations of Vines have been made in different places where rocky soil, penetrated by the burning sun, abounds; doubtless, they will soon begin to produce, and let us hope their juice may yield as generous a wine as the famous Cariavellos. Olive and Orange trees, either planted in lines or groups, join the Vines, and, especially the former, consisting of young and healthy individuals, with erect stems and bushy crowns, promise well for the future, though the conditions under which they are growing do not correspond closely with those usually thought necessary. As regards the Orange trees, I confess I am doubtful as to the quantity and quality of their crop. The famous Azorean Orange trees are, it is true, grown under very similar meteorological conditions, but there the trees are always sheltered by strong plants of Camellias, Pittosporums, Myrica Faya, &c., and this protection though very useful, is not admissible in a place where landscape gardening is one of the principal objects. Two other kinds of plants, much resembling each other in the size and shape of the fruits, occupy considerable spaces, and have been chosen for the very worst soil, viz., Ficus carica and Opuntia Ficus indica. If the true Fig trees attain large dimensions the stems of our Opuntia are forming the underwood; both—principally when they are laden with fruit—have a somewhat peculiar appearance, and in planting them thus together one of the best combinations possible has been effected. As this garden is an experimental one we cannot be surprised that Musas, as M. sapientum and M. sinensis, are to be tried too; the future only will show if good Bananas can be grown. Of climbers, which are covering the offices and stables, I will only mention Eugenia Michelii, which flowers and fruits here in abundance. The magnificent mansion here is not yet quite completed; nevertheless, its architectural beauty is already apparent, and the excellent interior arrangements remind me of some noble English residences where comfort is so thoroughly studied. The principal attraction of this fine building, however, is to be found in the fact that it immediately overlooks the ocean; from the sea, indeed, one might fancy that it rose abruptly from the water, the waves continually beating against the solid rock which forms its foundation. From this standpoint we may say farewell; for, with the grand expanse of water on one hand and the lovely inland view on the other—a view rendered completely beautiful by human taste and energy—we may say, "The works of Nature and those of man have here lent to one another their mutual charms." Edmund Goeze.

Polytechnic School, Lisbon.

Clematises in Wet Seasons.—In spite of the wind and wet, my garden has never been so beautiful as it is this summer. On the whole, perhaps, the Clematises of the Jackmani type have most enjoyed the kind of weather which we have had. I would especially recommend Henryi, a Clematis which blooms the summer through; its flowers are white, and measure 7 inches across. Thomas Moore is larger than Jackmani, six-petalled, and violet in colour; the blooms last, individually, a week or ten days. Velutina purpurea, another of Messrs. Jackman's hybrids, blooms incessantly from the middle of June till the end of the autumn, and is the deepest and richest in colour of the whole section. Viticella grandiflora is a rich claret variety of the Viticella type, and well worth growing. These last three should be cut down almost to the ground, or layered so as to make their new growth push through about 4 inches of soil, and thus obtain new root-hold before the year is over.—Frank Miles, *Bingham, Notts.*

Remarkable Yew in Dorset.—In The Garden, of the 31st July, I observed an interesting account of the Crowhurst Yew tree, which brings to my recollection a grand old Yew which I saw two years ago in Allhallow's Cemetery, St. Giles's, Dorset. The circumference of the trunk, which is perfectly sound, is 30 feet, and the height of the tree 60 feet, as near as I could judge. It covers a large space, and I was told that it is 2,000 years old. Every care should be taken of such a relic of past ages. It is growing on land several feet higher than that of the adjoining meadow, and the bank has been cut away too near the tree; twenty or thirty cartloads of soil should be put against the bank for the tree to root into. It is still in vigorous health and condition, and, with attention, will last for many generations yet to come. There is a companion Yew tree of the same age on the opposite side of the cemetery, but it is nearly destroyed by being smothered with Ivy, which has been allowed to grow over it. This Ivy should be cut away at once, as the tree, having still great vitality, may yet recover itself. I noticed in this cemetery the tomb or mausoleum of the late Mr. Corry, First Lord of the Admiralty during Mr. Disraeli's former administration. Perhaps this family may take an interest in the preservation of these Yews.—J. L.

THE HAIRBELLS.

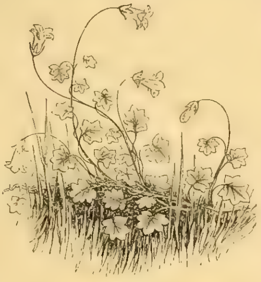
By J. C. NIVEN, Botanic Gardens, Hull.

Few genera of plants contribute a larger number of species adapted for the decoration of the herbaceous border and rockery than the Hairbells or Campanulas. Amongst these we have great diversity of character and wide distinctions as regards height, for whilst some species trail so close to the ground as scarcely to lay claim to height, even reckoned by fractional parts of inches, as illustrated by C. hederacea; we have others, whose flowering spikes attain a height of 7 or 8 feet, and yet all are closely related, and readily recognisable by their regular bell-shaped flowers. The chief variation consists, in the depth of the united portion or tube of the corolla, as well as in the spreading character which the five segments or divisions assume. The genus contains about 200 or more described species, and in selecting from these some forty or fifty, of which I purpose in the following cultural, rather than botanical, monograph, to give brief popular descriptions, accompanied by figures of all, or nearly all, of the plants described, I trust my botanical friends will pardon me if I adopt a very simple and matter-of-fact style of grouping, one, indeed, which I fear Mons. Alphonse de Candolle—the great authority on the order Campanulaceæ—will look upon as little better than a piece of gross vandalism. I have already alluded to the great variation in stature, which is characteristic of the genus, and, thereupon, I purpose basing my three primary divisions, viz., dwarf, medium, and tall. These, if not considered orthodox by botanical *savants*, will, at least, commend themselves to the ordinary horticulturist on the score of intelligible simplicity. While, however, at what might not be inaptly called the shrine of popularity, I may be said to sacrifice certain structural peculiarities, ignoring thereby the basis on which the true affinities of species are regulated, I may say, as a set-off, that, under the three distinctive groups, as above stated, it is my intention to carry out, as far as practicable, the family relationship, and I trust my botanical friends will be able to admit, at the close, that I have, to some extent at least, succeeded in combining the natural with the purely artificial systems. Of this I am the more sanguine, as, on looking over the species, I find that there is more parallelism (if I may be allowed to use the term) as regards Nature and Art, than I at first expected; and that, while resolving the genus into three altitudinal sections by absolute measurement, no serious violation of the recognised botanical distinctions will be necessitated. But, before I begin with the individual descriptions, let me say a few words as to the generic appellation, in its Anglicised form, which I have adopted as the heading of this article—"The Hairbells." Perfectly distinct are they from the Bluebells, although alike in colour; the latter, however graceful they may be in the curvature of their nodding racemes, possess but little of the fairy elegance of their autumnal namesakes, whose flowers, poised on a hair-like foot-stalk of the utmost delicacy, dance and whirl in the autumn breeze with a lightness and loveliness that are enhanced by the scarcity of similarly-coloured flowers at that season of the year. Most appropriate, then, is the designation of Hairbell thus given to them, as represented by the native type with which all your readers are familiar; so much so, that even the poetic title of "Fairy Bell"—the name recorded by some of our quaint old authors—will not tempt me to endorse the claim to which a precedence of nomenclature might seem to entitle it. The genus Campanula is essentially a representative characteristic of the flora of the temperate regions of the northern hemisphere, where, especially in Europe, between the thirty-seventh and forty-seventh parallels of latitude, it attains its maximum specific representation. There are a few American species, several from the Cape of Good Hope, a few Japanese, and, no doubt more to follow. Madeira, St. Helena, and the Azores contribute some very distinct types of the genus—so distinct, indeed, that they might well be referred to special generic distinction. The Himalaya Mountains also furnish us with several species. These, however, like the majority of those from the Cape, being of only annual, or at most biennial, duration, lack the persistency of character which is necessary to give them a title to more than a mere mention in this brief outline of the geographical distribution of the genus.

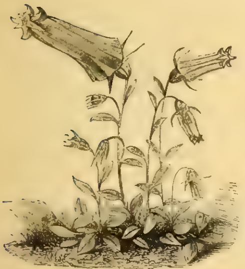
Section I.—Dwarf Campanulas.

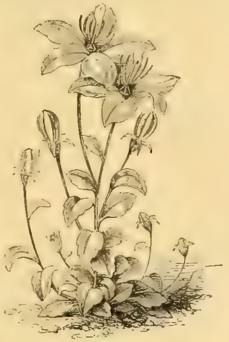
Under this group I purpose arranging those species whose height does not usually exceed 12 inches, and whose habit is trailing or fragile, thus including therein the true Hairbells, although they not unfrequently, under the protective influence of a hedge or other adjacent vegetation, attain a height considerably exceeding the standard I have fixed as a sort of limit to this, the largest section.

C. hederacea, of Linnæus, popularly known as the Ivy-leaved Hairbell, is one of the dwarfest of the dwarfs of the genus, and thus claims precedence. The leaves are small, cordate, sharply-toothed; the flowers are supported on very slender foot-stalks, and are of a pale subdued blue, but produced in such abundance that the green colour of the Grass and mossy sward among which it loves to grow is suffused with a delicate azure tint, such as no other plant can give. It is a native of Britain and Ireland, but is by no means common, and always affects a damp springy sub-soil. In cultivation it does not like to be isolated, but loves the protective shelter of other dwarf-growing herbage, than which no companion could be more appropriate than Anagallis tenella, whose pale flesh-coloured flowers would harmonise admirably with it. This Campanula really belongs to a distinct genus named Wahlenbergia, distinguished by a special mode of dehiscence in the fruit capsule, which is a little globose body. It may be increased by seeds, but they are shy in vegetating, and so minute that they should be merely sprinkled on the damp soil and covered with a square of glass over the top of the pot.

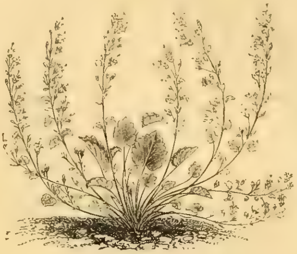

C. hederacea.

C. Zoysii (the Narrow-throated Hairbell).—A dense tufty plant allied to C. cenisia, but more compact in habit; leaves leathery, ovate and spathulate, quite smooth; flower-stems, about 2 or 3 inches high, with several narrow leaves, producing from their axils abortive flowers, terminated by one perfect bloom. Flowers, large in proportion to the size of the plant, azure blue in colour, broad at the base, narrowing towards the mouth, terminated before expansion by a pretty stellate process, arising from the infolding of the segments of the corolla after expansion. These are seen to be densely bearded, forming a mass of hairs surrounding the large capitate stigma. A native of Carinthia and Styria. For the pleasure of making, for the first time, a personal acquaintance with this charming little Alpine plant, I am indebted to the rich collection of Messrs. Backhouse, at York, by whom it has recently been introduced into cultivation. A glance at the accompanying figure will be sufficient to indicate the singularity and beauty of this little gem amongst Hairbells.


C. Zoysii.


C. Waldsteiniana.

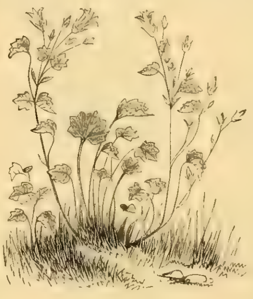
C. Waldsteiniana (Waldstein's Hairbell).—Of compact habit, producing numerous leafy, cymose corymbs; leaves, broadly lanceolate, quite smooth; flower-stems, scarcely 3 inches high; segments of corolla widely expanded and deeply divided; the stigma elevated on a long protruding style. A charming little free-flowering species, a native of Hungary, originally introduced in 1824, but for years lost to the country, till re-introduced recently by our enterprising caterers to the taste for Alpine flowers, the Messrs. Backhouse, of York, to whom I am indebted for the plant from which the accompanying figure was made. It appears to be a free-growing cultivable species, and may, no doubt, be readily increased by cuttings taken from the early spring growth, and placed in a gentle bottom-heat.


C. muralis.

C. muralis (the Wall Hairbell).—A dense tufty-growing evergreen species, with small broadly cordate, irregularly-notched, bright green leaves, cucullate in shape, supported on foot-stalks an inch or more in length; but so numerous are the leaves, and so dense their arrangement, that the foot-stalks are scarcely visible. The flowering branches are prostrate, furnished with similar leaves, but diminishing in size. The flowers are pale blue, deeply notched, and wide expanding, with a line of deep blue from base to apex of each segment. This plant has been long in cultivation, and for many years was commonly known by the name of C. Portenschlagiana, with which, as figured in an early number of the "Botanical Register," it has no relationship whatever. It is a plant of free growth, equally adapted for pot culture or for rock-work. It spreads but slowly by the development of underground stems; and hence succeeds well when planted in fissures or crevices of the rockery. It is a native of Dalmatia, and flowers abundantly in August or September.

C. cenisia (the Mont Cenis Hairbell), in its native habitat, at a high altitude, forms a creeping mass of underground stems, terminated, as they rise above the surface of the soil, by an irregular rosette of pale green, obovate, almost entire leaves; the flowers are light blue, solitary; the segments of the corolla expanded, and almost divided to the base. It flowers in July and August (in this country generally a month earlier), and is found associated with the Saxifraga biflora, and, indeed, is as unamenable to ordinary cultivation as that plant is. Grown in pots it is decidedly short-lived, nor can I say that I have succeeded much better with it planted out on the rockery. The process of blooming appears to almost exhaust the entire energies of the plant. Possibly some of my readers may have been more successful, and will kindly state the conditions under which their cultural success was attained.

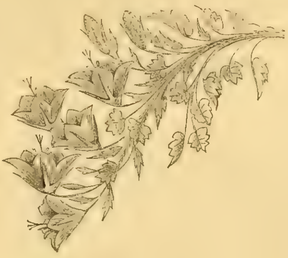
C. garganica (the Hairbell of Mount Gargano).—In compact, tufty habit of growth this plant bears a considerable resemblance to C. muralis, but it is larger in all its parts. The radical leaves are more uniform, and distinctly toothed at the margins rather than crispate. The flowers are produced in irregular branching cymose racemes; the corolla is divided into deep, narrow, partially reflexed segments—pale blue, shading off to white towards the centre. It blooms abundantly, and thrives well either on a rockery or in a border; owing to the pendent character of its flowering branches, its proper place is, however, against a rocky ledge, over which its masses of flowers may hang. It blooms in June and forms a valuable plant either for suspension in a window or conservatory. It may be readily increased by cuttings in early spring, or by division.


C. garganica.

C. garganica var. hirsuta is a hairy plant that, I believe, ought strictly to be referred to that species described under the name of C. Elatines. It differs from the true garganian type by the radical leaves being more pointed, and the whole plant pubescent. I think it, however, as well to retain it as a mere variety, the more so as seedlings raised from it are as frequently glabrous as pubescent.

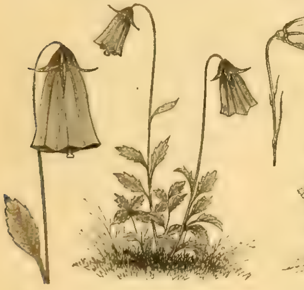
C. garganica var. floribunda receives its name from its free-flowering propensities. It is smaller in growth—in fact, intermediate between this species and the previous one; the corolla is less divided and more campanulate, and the racemes more erect. There is also a pure white form of this variety.

I may here note that the Garganian Hairbell is frequently met with under the name of fragilis, from which, however, it is perfectly distinct, as will be seen by the following description, as well as by the illustration.


C. fragilis var.

C. fragilis (the Brittle Hairbell) is a glabrous plant, excepting the young branches, which are coated with soft down. The radical leaves are reniform, on longish stalks, crenate at the margins, of a deep shining green, few in number; the flowering branches are lax in arrangement, either prostrate or hanging downward, where the position of the plant will admit, and where growing freely they attain a length of 12 or 15 inches; the segments of the calyx are rigid, expanded horizontally, and quite as long as the corolla; the latter is an inch or more in diameter, more salver-shaped than campanulate, of a delicate blue tint of colour; the style is very prominent. Of all the species this is the best adapted for a suspended basket, and it does admirably in a cottage window. It is more tender than the preceding species, coming, as it does, from the seaside rocks in the south of Italy and Sicily. It should be increased by cuttings of the young shoots in spring. To divide the plants is a rash experiment, and one which will at once suggest to the operator how appropriate is the specific name. There is a major form, known by the name of C. Barrelieri, which possibly has its origin only in a more vigorously growing condition. If planted on the rockery, a watchful eye must be kept against snails, which, while fond of all the family, have an especial affection for this.

C. pulla (the Austrian Hairbell).—Radical leaves broadly elliptical, light green in colour, few in number, scarcely rising beyond an inch or two above the surface of the ground. Stems, foliaceous, smooth; leaves, obovate, almost entire, terminated by a single drooping campanulate flower of a deep purple colour; the segments of the corolla are very slight, and are more contracted than expanded at the mouth. This, when grown freely, is one of the most charming of the whole group, its classical shape, its depth of colour, and its simple unifloral character are all special elements of beauty. It is a native of the Austrian Alps, and is generally found growing among the Grass in the high mountain pastures, where its tendency to produce rambling ground stems is not checked or limited; therefore, if planted on the rockery, it should have a good wide shelf of moderately flat soil to itself in which a little peat and sand has been previously mixed. This plant is usually looked upon as a shy grower, and, consequently, is generally grown in a pot, which, for the reason I have just stated, is not at all adapted to its peculiar mode of growth—the first season it will do very well, but the second will bring disappointment. It may be increased by hundreds in the spring by taking off the young shoots and placing them in a gentle bottom-heat. They will strike as freely as those of a Lobelia and make fine compact autumnal flowering plants, but observe that success depends greatly on the vigorous character of the plant from which the cuttings are taken. After blooming the foliage disappears and the plant goes to rest.

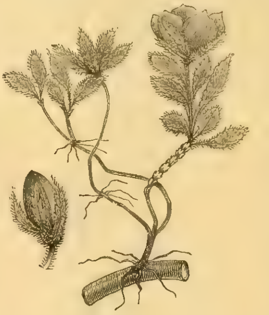

C. pulla.

C. cæspitosa.

C. cæspitosa (the Tufted Hairbell).—This we take to be the true specific type, of which C. pumila is nothing more than a dwarf variety. Its roots ramble very much, and it soon forms large patches in a border consisting of moderately light garden soil. Its flowering stems, bearing, when growing vigorously, five or six gracefully-pendent light blue flowers, rise from a mass of leaves to a height of 6 or 8 inches. The radical leaves are broadly ovate and dentate; those of the stems are linear and entire. It flowers in July and August, both abundantly and continuously, and may be increased readily by division of the root. It is a native of Switzerland, and occurs pretty generally on all the South European Alps. This species is sometimes met with under the name of gracilis; but the true gracilis is a native of Van Diemen's Land, and correctly belongs to the genus Wahlenbergia.

C. cæspitosa var. pumila, of dwarfer stature, scarcely exceeding 3 or 4 inches in height, flowers usually in pairs on a stem. There is also a white form of this variety, equally pretty as the blue.

C. modesta, doubtless a variety of still dwarfer growth, has smaller leaves and flowers. It is a native of the Alps of Southern Europe. Though remarkable, when first received from its native habitat, for its exceedingly diminutive character, it undergoes such a change in cultivation, that I fear it must only be considered as a locally stunted form.


C. Rainerii.

C. Rainerii (Rainer's Hairbell).—A plant, though cultivated for some years on the Continent, where it appears to thrive freely, that has only recently found its way into Britain. It is a dwarf, compact, sturdy plant, the height varying from 3 to 6 inches, each branch bearing a large solitary dark blue flower. My own experience leads me to infer that in our English climate it is rather a shy grower; but, possibly, the plants I have had to deal with have not been well established. It is a native of the Alps of Northern Italy.

C. isophylla (the Ligurian Hairbell) in the flat expanded corolla and the protruding club-shaped pistil bears very considerable resemblance to C. fragilis; but its leaves are much more numerous, larger, of more equal size, and broadly heart-shaped, of a light green colour. The flowering stems are more densely branched, and well furnished with foliage; the flowers themselves are aggregated together in a corymbose fashion. It is a native of the Italian Alps, where it grows abundantly in fissures of the calcareous rocks. Though May and June may be said to be its right period for blooming, it may be, owing to injury from snails in its early growth, found equally gay in August and September. After blooming, its stems lose all their leaves, and it appears then to enjoy a period of complete rest. It was originally named C. floribunda, but the name I have adopted has the right of priority. There is also a pretty white variety.

C. turbinata (the Vase-like Hairbell) is a dwarf compact-growing plant with deltoid leaves, crispate and notched along the margins, of a greyish-green, owing to the presence of a covering of short rigid hairs. In the true typical species, the flowers are borne singly on naked stems, about 6 inches long; they are upright, widely expanded, of a deep shade of blue, and fully 1½ inch across. The flowering extends over the months of June and July, in a continuous succession; and, if the plant be cut back, a second autumnal blooming not unfrequently follows. It is a native of the mountains in Transylvania, and is of comparatively recent introduction; a charming plant, well adapted for either border or rock culture. Though perfectly distinct from the Carpathian Bell-flower in its normal state, if propagated by seed, which it produces pretty freely, a vigour of growth is developed that, were it not for its larger leaves and more decumbent habit, it really approaches so near to that plant as to render its true specific identity doubtful; this, too, occurs where there is no possibility of hybridisation taking place.

C. carpatica (the Carpathian Hairbell), an old and deservedly popular garden plant, of lax free-flowering habit. The radical leaves are broadly ovate and cordate, supported on moderately long foot-stalks. The flowers are large, vasiform; the margin of the corolla very slightly indented; the stigma deeply trifid, and included within the corolla. The flowers are on long foot-stalks, loosely grouped into cymes, 12 to 15 inches in height, erect, and light blue in colour. Through July and August there is a succession of blooms, produced so constantly that at one time it was considered to have established a rightful claim to the flower garden. It is, however, a border plant of such value, that no garden should be without it. It is readily increased by seeds, which are produced in abundance.

C. turbinata.

C. carpatica var.

C. carpatica vars. pallida and alba.—The former is a very pale blue, the latter a pure white, both being desirable variations; these, however, must be propagated by spring cuttings or root divisions, as the variation does not perpetuate itself from seed.

C. rotundifolia (the Round-leaved Hairbell).—Although a wild plant, and enjoying a wide distribution throughout Britain, which renders it familiar to all, it loses none of its beauty by reason of its familiarity; in it we have the true type of the original claimant to the title of the Hairbell. In early spring its round-leaved character is fully developed, as then the little tufts of radical leaves indicate, at a glance, the origin of its specific title, but, as the flowering stems become developed, these gradually die away, and the leaves which accompany the flowers are long and narrow; hence it is a subject of surprise to those who only know it when in bloom, that such an apparently inappropriate name should have been given to it. So well known is the plant that it is almost needless to give a description, and I will content myself by saying that, as a garden plant, it is not to be despised; the more so as, under generous cultivation, it grows with a vigour, and produces a long-continued succession of blooms, that render its specific identity with the wild plant, at the first glance, a matter of doubt. As in most species, there is a white variety, but it is generally of a dwarfer and more slender habit.

C. rotundifolia.

C. rotundifolia var. alpina, sometimes erroneously named C. alpina, which plant, as figured in the "Botanical Magazine," belongs to quite a different section, botanically speaking, and has not been in cultivation for years. The alpine form differs chiefly in the foliage and stem being covered with hairs; the flowers, also, are produced in a more compact raceme, and are of a deep violet colour. I have never met with it in this country, but it is very abundant in Switzerland.

C. linifolia (the Flax-leaved Hairbell) claims close relationship to the foregoing species, and differs chiefly in the absence of the round leaves at the base; they are, however, considerably broader than those of the stem; the whole plant is a more vigorous grower, and the leaves are closer arranged on the stems; the flowers are larger, of a darker blue colour, and more expanded at the mouth; it attains a height of 15 inches, and flowers in July and August. It is a native of Switzerland, and may be increased by root division or seeds.

C. linifolia.

C. soldanellæflora (the Double-fringed Hairbell).—Whether this should really be considered as a distinct species, or as merely a double form of the Flax-leaved plant, I am at a loss to determine. I have given it the name of the Double-fringed Hairbell, not that its corolla is so divided, but from the appearance which the protruding points of the inner coralline segments give to it, reminding one, especially when the plant is in a small stunted condition, of the beautifully-fringed flowers of the Soldanella. Hence the name. When planted out in the border or rockery, and growing freely, it attains a height of fully 15 inches, or even more. The upper portion of each of the stems is well furnished with pendent dark blue flowers, arranged on a somewhat irregularly branching raceme. All the leaves are linear, even those which spring from the root, which scarcely at all exceeds in breadth those of the flowering stems. This plant was originally introduced from the Continent; but whether found wild or originating as a garden sport I cannot say.

C. soldanellæflora (Flore des Serres).

C. soldanellæflora.

C. rhomboidea (the Rhomboid-leaved Hairbell).—The broadest-leaved of this very distinct section; it has simple erect stems and scarcely any radical leaves, those of the stem being ovate, slightly serrated, and covered with a short pubescence. The flowers are pale blue, slightly contracted at the mouth, and remarkable for their wide-spreading, narrow, calycine segments; they usually hang along one side of the flowering stem, the foot-stalks, being unequal in length, giving them a graceful irregularity. It is a native of mountainous districts throughout Europe, and flowers in May and June. Closely allied to this, but much more abundantly floriferous, is C. tenella. This is readily distinguished in its true character by the brown colour of its young shoots and leaves, which are almost of a coppery hue. It is of a straggling habit, has narrower leaves than the last species, irregularly notched at the margins, and produces its deep purplish-blue flowers in June and July. It should be grown from cuttings, as it is liable to sport from seed. It is a native of the mountains in northern Europe, and not very frequent in cultivation.

C. rhomboida.

C. Langsdorffiana (Langsdorff's Hairbell).—Though a pigmy in stature as compared with rhomboidea, there appears to be sufficient relationship between the two species as to warrant us in placing them in juxtaposition. In this we have a plant scarcely exceeding 4 inches in height, with lanceolate leaves, broader at the base than on the stem, each leaf being distinctly serrated. The flowers are borne singly, nearly pendent; the corolla is blue, widely expanded, with the segments pretty deeply cut. It is rather a shy grower, and does not increase rapidly at the root; but, no doubt, cuttings made from the early spring growth would strike freely. It has been recently introduced from Russia, we believe, by Messrs. Backhouse.

C. Langsdorffiana.

C. collina (the Sage-leaved Hairbell) is a very distinct species, with a creeping-root habit, sending up stems to a height of 12 or 15 inches, each stem provided with a few narrow leaves, from whose axils the pendent flowers are produced; the radical leaves are ovate, with crenulated margins; the corolla is broadly bell-shaped; the segments pretty deeply cut and reflexed, margined by hairs; the flowers are blue, produced in May and June. It is a native of the Caucasus, and, though it produces its flowers somewhat sparsely, it is, nevertheless, a very desirable border plant.

C. barbata (the Bearded Hairbell) has broadly-lanceolate blunt-pointed leaves, well suffused with hairs; from these arises a hairy stem, almost devoid of leaves, to which the flowers are attached in a somewhat irregular pendent manner; the divisions of the corolla are sufficiently reflexed to show the protruding hairs with which the interior is provided and whence the specific appellation is derived; the flowers are white or a delicate blue; it is a native of the Alps, and ripens its seed freely, by which means it may readily be increased. It is a good distinct species.

C. thyrsoidea (the Dense-spiked Hairbell) claims a relationship to the previous species, from which the dense arrangement of its yellowish-green flowers amply distinguishes it, as also the absence of the bearded appendage. This plant is a biennial, producing during the first year a rosette of numerous sessile, broadly lanceolate, or lingulate leaves, sparsely covered with rigid hairs; from this rosette rises the following year, or it may be the year after, a foliaceous spike of densely-arranged flowers, reminding one, in fact, of a bottle brush, and terminated by a single flower, which is the very first to expand, thus showing unmistakeably the true cymose character of the inflorescence in the Campanula. After flowering in favourable seasons it will ripen seeds, but so densely packed is the mass of bloom that a couple of consecutive wet days rot the stem, and the prospect of a seed harvest vanishes; failing this, there is no possibility of propagating it by cuttings or division. It is a native of the Alps, where its peculiar growth makes it a somewhat remarkable object.

C. collina.

C. punctata (the Spotted Hairbell) is of creeping habit, and, like many similar creeping plants, difficult to get established, but when once so, it is equally difficult to keep within bounds. Its leaves are rough, broadly cordate, supported on good long stalks; from amid the mass of foliage rise the flower-stems to a height of 8 or 9 inches, each stem carrying two or three pendent milk-white flowers, fully 2 inches long; the spotted character, though slightly noticeable externally, is, however, not thoroughly recognised until the flower is lifted up, when its interior is found to be mottled all over. It is a native of the eastern districts of Siberia, and blooms in July. It does not produce seeds, but its creeping propensities, to which I have just alluded, renders its non-seminal property a matter of no great consequence.

C. Speculum (the Looking-glass Hairbell) and **C. pentagonia** are, strictly speaking, referable to Heritier's genus Prismatocarpus, based on the prism-shaped character of the seed vessels. They are both annuals; and, when this class of plants enjoyed more popularity than at the present day, they were to be found in every garden; now we rarely meet with them. If their bloom, as is the case in most annuals, be of short duration, they are none the less lovely, as may be readily imagined from the accompanying figure. The corollas are less campanulate in shape than is usually characteristic of the genus. They are both natives of the cornfields of southern Europe. When I last saw the former of the two species, it was growing rather abundantly in a cornfield in Yorkshire, where, no doubt, it had been introduced along with the seeds, and it looked as though it was perfectly at home in its new quarters.

C. thyrsoidea.

C. nitida (the Shining-leaved Hairbell).—A rigid-growing plant, both as regards stem and leaves; the latter are produced in dense rosettes, broadly obovate, almost sessile, from the centre of which rises the stem to a height of about 9 inches; the leaves thereon are narrow and stiff, and, like all the rest, of a shining deep green; from the axil of these cauline leaves rise the secondary peduncles, each terminated by a broadly campanulate flower of a deep slaty-blue colour; the stigmas are bifid (a somewhat unusual character in the genus) and project beyond the corolla, which is erect rather than pendent. This plant is one of the few species that are natives of North America; it sometimes goes by the name of C. americana, a species which is only of annual duration, whereas C. nitida is a long-lived perennial. There is a pure white and a double form, both of which are desirable varieties. It likes a well-drained sunny corner of the rockery, being rather liable to damp off in the winter. It may be increased by a division of the rosettes that form at the base of the flowering stem.

Section II.—Medium-sized Campanulas.

We have now to consider the second section or those of medium development. Under this group I purpose including those whose height ranges from 15 inches to 2 feet, admitting, of course, that varying cultural conditions may reduce some below, and increase others above, the standard I have fixed.

C. glomerata (the Clustered Hairbell) acquires its very appropriate specific title from the dense mode in which the flowers are arranged, forming sessile axillary groups in the upper part of the stem, which is terminated by a dense mass of flowers. The radical leaves are stalked, almost oblong, not unlike those of the common Sage; those of the stem are broadly ovate, sessile, becoming broader and shorter where the flowers are produced, the base almost embracing the stem; the flowering rachis is unbranched, and rises to a height varying from 1 to 2 feet. The flowers are produced in clusters; individually, they are pretty, deeply campanulate, the divisions extending to one-third the depth of the corolla. It is generally found throughout Europe growing in scattered isolated tufts in nearly all calcareous soils, flowering in June and July, and varying in shades of colour between a deep intense purple and pure white; the latter form is somewhat rare. In the border it forms a very compact and useful plant.

C. punctata.

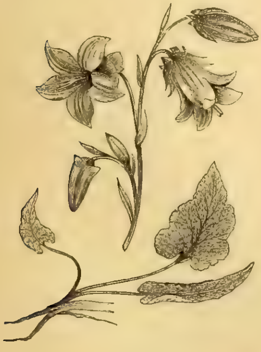
C. glomerata var. dahurica is larger in all its parts, and is sometimes cultivated under the specific titles of C. speciosa and C. Cephalotes. This variety was introduced from Siberia by Fischer under the impression that it was a distinct species, but, in cultivation it proves to be nothing more than a very showy variety.

C. Speculum (see p. 176).

C. pentagonia.

C. glomerata.

C. sarmatica (the Sarmatian Hairbell), a free-growing herbaceous plant, the whole surface of which is covered with a moderately dense pubescence, which gives it a greyish aspect; the radical leaves are cordately hastate, irregularly notched, and undulate at the margins, supported on foot-stalks fully 3 inches long; the cauline leaves are lanceolate-acuminate, sharply serrated, and slightly decurrent down the sides of the short petioles; the flower-stems rise to a height of about 2 feet, furnished with flowers through almost their entire length; the lower blooms are supported singly on longish foot-stalks, the upper ones are almost sessile; the tube of the calyx is covered with a dense pubescence, and the divisions, which are broad and extend to nearly half the length of the corolla, are green; the corolla is campanulate, divided nearly half-way down; the segments widely expanded, but not recurved; the colour is a light blue. It is a native of the rocky sub-Alpine regions of the Caucasus, where, owing to the weight of the masses of flowers it produces, it not unfrequently assumes a decumbent growth, a habit which we find holds good in cultivation; hence it requires the help of a stake to guide its early growth. It flowers in July and August, and increases readily from seed, which come perfectly true. Synonymous with this species is C. gummifera, whose only distinction is apparently slightly narrower leaves.



C. sarmatica.

C. Medium.

C. Medium (the Canterbury Bell), an old familiar biennial that has long held a deservedly popular position in our gardens; it produces the first year an irregular group of rough, oblong, hairy leaves, crowning a thick fleshy root; the following season from the centre of these rises to a height of about 2 feet, a broadly-branching, panicled, foliaceous cyme of pyramidal form; the flowers are large, perhaps the largest of the genus, pendent, produced regularly over the entire pyramidal mass; they vary in colour through shades of soft blue and purplish-blue to a deep indigo-blue. Besides these, we have some forms that assume a semi-double character, owing to a sort of deduplication of the corolla. In order to secure its permanent beauty in the garden a pinch of seed ought to be sown every year, and bedded out in the reserve garden, to be finally removed to the blooming border the following spring. The more carefully they are isolated, and the more vigorously they are grown when young, the finer will be the plants the following season. It is a native of the margin of woods in Germany, and blooms in July and August. It is also known as the Coventry Bell, and the specific name Medium is the old generic name given to it, I believe, by Dodonæus.

C. Trachelium.

C. primulæflora (the Primrose-flowered Hairbell).—With all due deference to De Candolle, by whom this plant was originally described, I fail to see any resemblance to the blossom of the Primrose, as the specific name would lead one to infer, in the flowers of this Campanula. Between its leaves and those of the Primrose, or, rather, some of our coarse-growing Polyanthuses there certainly is, especially in their rough corrugated character, a great similarity; and I have always considered that it is a misnomer for C. primulæfolia. Like the Canterbury Bell, it is little better than a biennial, the flowering process almost invariably exhausting the entire energies of the plant. In general contour it is, however, quite distinct, as the stem of this species rises erect, and unbranched to a height of 2 feet, from a mass of broadly ovate, roughly-corrugated and serrated leaves; the flowers are wide, expanded, sessile, of a slaty-blue colour, gradually shading to white at the base of the corolla; both stamens and pistil protrude boldly from the flowers; it is a native of Portugal, and is closely related to C. peregrina, if it be not, indeed, identical with it. The latter is said to be a native of the Cape, but I strongly suspect this habitat has been recorded by mistake. In C. peregrina, as figured in the "Botanical Magazine," the corolla is a darker blue towards the base, a distinction that may entitle it to the name as a variety rather than as a distinct species; both bloom in July and August, and may be increased by seeds, which they produce freely.

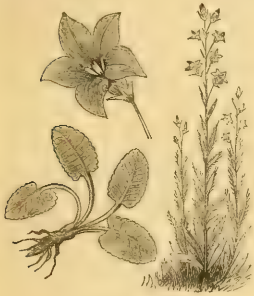
C. urticæfolia.

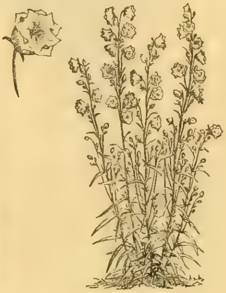
C. Trachelium (the Rough Hairbell), a sturdy herbaceous plant of compact root growth, producing from amidst a mass of long-stalked cordate leaves (with their margins doubly serrated, and rendered rough by the presence of short rigid hairs distributed over the whole surface) a number of erect flower-stems attaining a height of 2 feet or a few inches more; the upper leaves are sessile, or nearly so, lanceolate and sharply serrate, gradually diminishing in size; the flowers are produced from the axils of the foliaceous bracts in twos or threes, pendent from short pedicels; they are of large size, the divisional lobes widely expanded, extending about one-third down the corolla, which is, usually speaking, blue, but, as in many species heretofore described, we have the white and double varieties; the latter, owing to the entire absence of stamens, retaining its flowers in perfection for a much longer period of time than the single one; it blooms in July, and is a native of Britain, and pretty generally distributed throughout central and northern

Europe, where it is generally found growing in moderately open woods.

C. urticæfolia, (the Nettle-leaved Hairbell), has much the aspect of the previous species; the leaves are, however, narrower, and less cordate; the rigid hairs, also, are absent on its leaves; the flowers are produced singly from the axils of lance-shaped foliaceous bracts; the whole plant is of smaller development; the flowers are either blue or white, and we have double forms of each, in which the corolla proper is much more expanded at the mouth than in the normal species so well represented in the accompanying illustration. It is a native of Germany and Bohemia, loving, like the preceding species, the partial shade of woods.

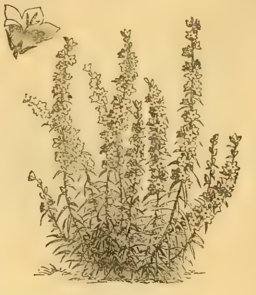
C. Rapunculus (the Rampion Hairbell) is a biennial plant, with foliaceous stems, rising to a height of 2 feet, and thick fleshy roots, which were, in olden time, much cultivated on the Continent as a culinary vegetable, and also in this country under the title of Ramps. From the fleshy root-stock it produces radical leaves, almost oval in shape, and hairy; those of the flowering stems are lanceolate and smooth, as, indeed, is the entire upper part of the plant; the flowers are arranged on the stem in the form of a loose racemose cyme; the corolla is deeply divided, and the segments wide and expanded. It is a native of Britain, and extends across the whole of central and southern Europe, where it is generally found in hedge-rows and open country districts, flowering in May or June, though not as showy as some of its congeners; it is a desirable border plant.


C. Rapunculus.


C. persicifolia.

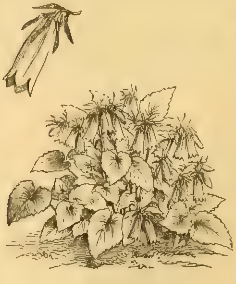
C. persicifolia (the Peach-leaved Hairbell).—The whole plant glabrous, of a shining deep green; the lower leaves forming lax rosettes, long, slightly obovate, and gradually narrowing down to the base; stems, erect, rounded; cauline leaves, few in number, very narrow and sessile; flowers, sometimes sessile, or, where elevated on a peduncle, closely adpressed to the main stem, giving it a spiciform appearance. The flowers are large, fully 2 inches across, rather more cup than bell-shaped; the stems, though wiry in texture, are often weak at the base, owing to the rosettes of the previous year, whence they spring, losing their vigour during the process of growth, and lacking root hold—hence, when in full bloom, if not provided with some artificial support, the stems lie about in an untidy manner. It grows from 1½ to 2 feet high and flowers in July and August—the early removal of the flower-stems causing not unfrequently the production of a few scattered autumnal blooms. Though recorded as a native of Scotland it is but a very doubtful one, it is, however, found abundantly through northern and central Europe, and appears to thrive best and bloom most freely on calcareous soils. C. persicifolia maxima is a giant form, exceeding the normal species both in height and floral development, as I have seen the flowers fully 3 inches across. To this variety the special specific title of C. suaveolens is sometimes given, but magnitude appears to me to be its only claim to such a specific distinction. Besides both the double blue and double white forms, there is a very interesting variety named coronata, in which a sort of dilamination of the corolla extends backwards, quite enclosing the calyx and foot-stalk of the flower, a somewhat unusual sport in the family. These three varieties are admirable for borders, and should find a place in every selection of herbaceous plants.

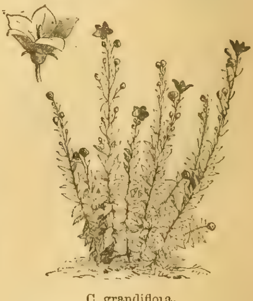
C. grandis (the Great-flowered Hairbell).—This is a decidedly distinct species of Campanula, although referred at first to a mere variety of the previous species. Its leaves are long, narrow, somewhat acuminate, the plant producing large masses of barren shoots, each forming a rosette of numerous laxly-arranged leaves, growing close to the ground, and so rapidly extending itself that by the third year a small plant will have covered with a dense leafy carpet a circle fully 3 feet in diameter, from which a dozen or more stems will have been developed to a height of 2 feet or, in some cases, even more; these stems are foliaceous, the cauline leaves being narrower and more rigid than the radical ones, to which we have already alluded; the flowers are wide, expanded, somewhat shallow, and more definitely notched than in the last species, densely arranged along the flowering branch on short foot-stalks, the leafy bracts gradually diminishing from below upwards, the lower ones being somewhat deflexed; it flowers in June and July, and is exceedingly partial to a slight shade; the flowers are blue, fully 2 inches in diameter. I have never met with, nor do I believe there is, any record of a white variation. It is a native of Anatolia, and, though rather a lax grower, is a useful plant.


C. grandis.

C. nobilis (the Noble Hairbell).—This, we believe, was one of Mr. Fortune's earliest importations from China; it is, in general habit of growth, allied to C. punctata, having creeping underground stems, from which isolated tufts of cordate hairy leaves are developed; these are supported on long foot-stalks, rather less corrugated and rough than in the species we have just mentioned; the flower-stems rise to a height of 18 or 20 inches, furnished with a few narrower leaves, and from the axils of these the large flowers, almost 3 inches long, hang pendent; they are campanulate, with the angles well defined and the lobes obtuse and slightly reflexed; the colour is a light chocolate with a shade of blue in it; there is also a creamy-white variety. It blossoms in May and rarely seeds, but it may be readily increased by the underground stems, which, as I said before, it produces in abundance. It is fond of a light open soil and a good sunny exposure. Though of comparatively recent introduction, and a really desirable plant, it is rarely met with in cultivation.

C. Van Houttei and **C. Burghalli** are two garden varieties that I fancy must have originated in seedlings from this species, the former has the general character of growth in the typical plant, but is more tufty and smoother; the flowers are similar in shape and size, but of a leaden-blue colour; it is a handsome and desirable variety. Though I have grown the latter so-called species for several years, I have been unable to make out anything decided as to its history. It is a strong grower, attaining a height in its flower-stems of 2 to 3 feet; its large pendent flowers are smooth, and of a rosy-chocolate colour, but not so defined in the angular character of the corolla as either the original species or Van Houtte's variety. Neither of these show the slightest tendency to seed, which may be looked upon as confirmatory evidence of their hybrid origin.


C. nobilis.


C. grandiflora.

C. grandiflora (the Broad-flowered Hairbell).—This, though I give it a place among the Campanulas, is properly referred to the genus Platycodon, distinguished, amongst other points, by the distinctly valvate æstivation of the corolla; the flower-stems rise from a thick, fleshy, white fusiform root to a height of 18 inches or more in a well-established plant; there are no truly radical leaves; the stems are foliaceous; the leaves, broadly ovate, almost sessile, slightly serrated at the margins, perfectly glabrous and glaucous, as, indeed, is every part of the plant; each stem is terminated by a flower, below which there are several axillary flowers produced in succession, the number varying according to the age and vigour of the plant; they are deep blue in colour, almost erect, 2 inches or more in diameter, and assume, when expanded, a pentagonal rather than a circular form; in the peculiar form of the bud before expansion, broad at the top and narrowing to the base of the flower, has originated its popular appellation of the Balloon-flower. In this country it seeds but rarely; in this respect, however, the sunnier clime of the Continent is more favourable to it, but, be it remembered that, as it is a long-lived perennial plant, it requires three years at least to attain its full development from seed. It is a native of Siberia, and when grown in this country ought to have a well-drained position in the rockery, with a sunny aspect; its fleshy roots are liable otherwise to rot off at the crown during the winter, thus destroying the possibility of growth, as, unlike many of the Campanulas, its roots appear to have no power to develop adventitious buds. There is a white variety, but, as yet, exceedingly rare in cultivation.

C. Vidalii (Captain Vidal's Hairbell).—A very singular semi-shrubby form of the Campanulas, introduced some years ago from the Azores. The stems are woody and slightly gouty in character; the leaves, light green, fleshy, long, narrow, and perfectly smooth and shining, slightly notched along the margins. The flowers are produced in loose panicles, which rise above the shrubby base of the plant to a height of 2 feet or more; they are white, with the slightest tinge of salmon colour, contracted in the middle, and suffused with a viscid secretion. The limb of the corolla is only slightly notched. In its remarkable orange epigynous disk, from which its stamens stand perfectly clear, and in its general habit, we have characters that appear to point to a generic distinction for this species. Coming from the Azores, it can scarcely be called hardy; but, where well grown, it makes a very handsome plant for the autumn decoration of the conservatory, and, possibly, may be found sufficiently hardy in the south of England and Ireland.

C. celtidifolia.

C. pyramidalis.

Section III.—Tall Campanulas.

In the third, and last, section, I purpose grouping all those Campanulas, whose height may be said, under ordinary circumstances, to exceed 3 feet, reminding, at the same time, my readers that the standard I have adopted is not an arbitrary one, and is subject, of course, to the many modifications which may be induced by the varying influences which affect plants under cultivation.

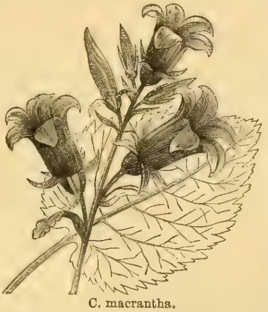
C. bononiensis (the Bologna Hairbell).—A very distinct upright growing species. The flower-stems which rise to a height of 3 feet or more, spring from a dense, compact crown; the lower leaves are ovately lanceolate, supported on short stalks, the cauline leaves are sessile, broadly ovate, and accuminate serrate at the margin, almost clasping the stem. These, as well as, indeed, the stems and lower leaves, are covered with a dense soft pubesence. The flowers are arranged in a sessile manner, in groups of three to five along the flower-stem, so dense as to justify its being called a spike. They are of a light violet-blue, comparatively small in size; but any deficiency in this respect is amply compensated for by numbers and denseness of arrangement. One peculiarity I should not omit to mention is that the upper or floral portions of the stems is almost devoid of leaves; and hence the dense arrangement of the flowers becomes more conspicuous. It is a native of France and Italy, and, indeed, of southern Europe generally.

C. celtidifolia (the Celtis-leaved Hairbell).—A most desirable plant, and a first-rate perennial. The branches rise from a somewhat fleshy underground stem of by no means a rambling disposition. They are well furnished in the lower part with light green, ovate, serrated leaves of considerable size. From the axil of the upper portion of these, the flowers are produced on long peduncles, in groups of seven or eight, assuming in their general character a corymbose arrangement. The corolla is deeply divided, and the segments well expanded, of a light blue colour. When well established, it attains a height of from 3 or 4 feet, and assumes an appearance differing considerably from that given in the accompanying figure, which may be said to represent this species in its second year's growth, whereas it requires three years, at least, before it assumes its true character. It is a native of Siberia, and flowers through June and July.

C. latifolia.

C. lactiflora (the Milk-coloured Hairbell).—This plant, which is of Caucasian origin, is very closely related to the previous species; it is similar in habit and growth, but differing in the size and colour of the flowers. In the former respect, they are nearly twice as large; and, in the latter, in place of blue, they are of a milky-white colour, produced in more lax corymbose cymes, and more distinctly divided in the acute lobes or divisions of the corolla. Both the species come true from seed, and neither acquire their full development till the third year.

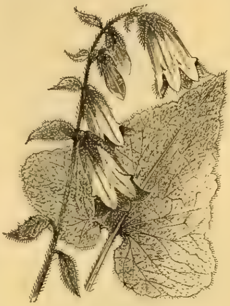
C. pyramidalis (the Pyramidal or Steeple Hairbell).—The latter is decidedly the best descriptive name of the two. It is a strong, vigorous growing plant, with smooth, shining, broadly cordate leaves below, supported on long foot-stalks, and dentate at the margin. The flower-stem, thick and fleshy, rises to a height of 4 or 5 feet, and is furnished with numerous broadly ovate, almost sessile, leaves, from whose axils the flowers are produced on peduncles varying in length, but all closely adpressed to the stem, thus giving the inflorescence much more the character of a steeple than a pyramid, which the original specific name is intended to convey. The flowers are either blue or white; the corolla widely expanded, its segments broad; they are rather erect than pendent, and, owing to the secondary floral branches developing their flowers gradually, and thus extending the blooming period over a considerable length of time, represented by the months of July, August, and September. This is a plant that dearly loves the shade, and is well adapted, not only as an ornament for the flower border, but also for the conservatory, where, during the latter summer months, a blue colour, of the bold character and classical contour which this plant presents, is a most desirable acquisition for conservatory decoration, where its columnar spikes contrast admirably with the gracefully-curved lines of the Ferns or Palms. In general cultivation, though not absolutely a biennial, it is better to consider it as such, as from seedling plants, well grown on during the first year, the finest stems are developed. It is a native of Carolina. It is fond of shade, and may be used with much advantage to decorate a partially-shaded lawn, provided always, of course, that it be grown on vigorously, and carefully prepared for the purpose. It matures its seed freely, but care should be taken that it be not sown too thickly, as it is very liable to damp off; and, owing to this cause, you may lose the crop altogether.


C. macrantha.

C. latifolia (the Broad-leaved Hairbell).—The stems of this plant are produced from a dense turfy mass of thick fleshy roots; they rise to a height of 3 or 4 feet. The lower leaves are ovate-lanceolate, doubly serrated, and supported on short petioles; those of the stem are sessile, similar in shape, covered with a short downy pubescence. This, indeed, is characteristic of all the parts of the plant, except the ovary, which is glabrous. The flowers are large, pendent, with slightly reflexed segments; they vary between white and blue in colour, and it is certainly one of the stateliest of our wild Bell-flowers. It is a native of Britain, and generally found in woods; it is also abundant through the whole of northern and central Europe. It flowers in June, and is a very desirable border plant.

C. macrantha (the Large-flowered Hairbell) is considered by some to be nothing more than a vigorous form of the former species, but I feel inclined to agree with Fischer in considering this a distinct species. Its stems rise to a height of 5 feet, and are well furnished at the base with ovate leaves. The vigorous stems are terminated by axillary clusters of large deep blue flowers of a size almost equalling that of the Canterbury Bells but less contracted at the mouth of the tube. It is a free vigorous-growing perennial plant, a native of Russia, and perpetuates its giant character when grown from seeds. It is, I believe, identical with Bieberstein's C. eriocarpa, as in both cases the seed capsules are covered with short hairs; not glabrous as in C. latifolia.

C. alliariæfolia (the Alliaria-leaved Harebell) is a strong-growing plant with large petiolate, sagitately-cordate leaves, covered with dense short hairs, giving them a grey appearance. The stems are rather more ascending than erect, branching and foliaceous, the leaves becoming narrower and more sessile as they approach the flowering portion of the stem; the flowers are white, campanulate, drooping, and generally disposed on one side of the floral axis, gradually widening from the base to the bottom of the slightly expanded segments. It grows to a height of about 4 feet, and flowers in July and August. A native of the Caucasus, and sometimes cultivated under the title of C. lamiifolia. It ripens its seeds freely, and by this means may be readily increased.



C. alliariæfolia.

DOUBLE FLOWERED AZALEAS.

To these, so many excellent additions have recently been made that they now begin to form a somewhat numerous class. Their flowers, being more lasting than those of the single kinds, are invaluable for bouquets, and they are equally bright and diversified in colour. The following are a few of the best selected from among those which we grow:—Albert Borsig, fine double white; Alfred Dallière, crimson-lake, bright and strikingly distinct in colour, not very full, but one which should be in every collection; Bernard André, rosy-purple, in form and style similar to the last, but somewhat larger; Crispiflora fl. pl., a finely formed bright rose-coloured variety, having usually six guard petals finely crisped; Flag of Truce, a well-known white kind, large, full, and well formed, one of the best; Lateritia fl. pl., orange-salmon, finely formed and crisped, good in size, one of the best; Madame Louise de Kerchove, a bright flesh-coloured kind, bordered with white, and occasionally flaked with orange, good in form and size; Madame Paul de Shryver, bright rosy-violet, very full, and finely imbricated; President Ed. de Ghellinck de Walle, deep rose, blotched and spotted with crimson, large and full; Queen of Double Whites, not so good as its name would imply; Red Gauntlet, red, large, and very showy, one of the best of its colour; Reine des Doubles, bright rose, very full, and fine in form; Rosea fl. pl., clear rose, large, and full; Souvenir du Prince Albert, rose and white, good in size, not very full, but showy and distinct; Souvenir de Van der Vinner, ruby-rose, large and full, a very superior variety; Victoria Crown Princess of Prussia, a finely formed flower, rosy in colour, full, and in every way excellent. To have double-flowered Azaleas in perfection, it is important that the wood be well-ripened, and well set with thoroughly matured buds; without these conditions, small or imperfect blooms will be the result.

West Dulwich. F. T. Smith.

Morina longiflora as a Border Flower.—Morina longiflora is quite a distinct-looking subject, and very well worthy of a place in the choicest collection. When small its great resemblance to a Thistle often leads to its destruction by persons ignorant of plants. It grows about 3 feet in height; the flowers are white when in bud, but change to a beautiful rose colour when first opening, and afterwards to a darker shade. They are small, but freely produced in the axils of the upper leaves. It is now in full bloom.—Oxon.

ROYAL GARDENS, HAMPTON COURT.

It has often struck me that these fine old gardens are underrated, and I fully believe that this thought will also occur to any garden lover who may care to visit them just now, and note their many and varied attractions. I say varied attractions, because it is variety, above everything, that renders all good gardens pleasing to us. Without this, one soon becomes tired of a scene which fails to please on account of its monotony. Lovers of trees will find here much to please them. The avenues of Chestnuts and Limes in Bushey Park are very fine in their way, and afford abundant shade during the hot summer months. This reminds me that on entering the gardens by the Bushy Park entrance, and turning to the right, past the maze, a tree-shaded path of gravel leads straight towards the old kitchen gardens; and, midway, is a small circular green, in the centre of which a thick boled, but low and spreading, Yew throws its sombre branches out over the fresh green turf. From this centre (which reminds one of the celebrated "Table ronde" and the radiating woodland avenues in the old forest at Chantilly), eight shady walks radiate, and form cool and retired promenades, with a leafy canopy overhead which rustles in the morning breeze. The principal trees here are Elms, Beech, and Limes, with a dense undergrowth of Laurel, Aucuba, Privet, and smaller Yews and other Conifers, the margins of the walks being fringed with well-kept turf, across which the subdued light flickers here and there forming transient patches of golden-green. A few Larch, Spruce, and tall Scotch Pines diffuse a delicious fragrance through the air, and this fact reminds us that it is possible to bring some of the healthy, invigorating fragrance of the Pine and Fir forests into our gardens, and whoever has sniffed the odour of a grove of Spruce Firs like those magnificent specimens which fringe the upland lakes at Chatsworth, will admit that this is a desirable and easily-attained addition to our woodland walks and drives. A few dark Firs and Pines, judiciously arranged in clumps among lighter-foliaged and deciduous trees, will also increase their pictorial effect. The view up the Thames from the river-wall terrace is a very pretty one, the river itself being fringed with grassy banks and partly overhung by Willows and other trees. The bedding arrangements are just now at their best, and are more attractive this season than we have observed them before; and, while the carpet beds delight the eye, the mixed borders are well filled with Roses, Stocks, Cloves, Pinks, scented Oak-leaved and Stag's-horn Pelargoniums, Mignonette, Sweet Peas, and other fragrant flowers. We are glad to remark this excellent use of fragrant flowers, and should like to see every bare inch of soil in our London public gardens and parks covered with Wallflowers in spring and Mignonette and Stocks, and other fragrant annuals, during the summer and autumn. In one of these mixed borders we were rather surprised to find a short row of a dwarf white-flowered yellow-eyed Chrysanthemum in full bloom. Chrysanthemums in July are an innovation in the outdoor flower garden worth recording, and in reference to this popular flower we may point out that the large flowered varieties are largely used here, trained on a south wall, where they are very showy in October. The rosy-flowered Sedum spectabile is also largely used in these mixed borders, and one or two beds, about 12 feet square, are entirely filled with this fine old plant, the cool bluish-green foliage of which forms an excellent contrast to the bright coloured flower beds, and comes out all aglow with its own soft rosy flowers, when their beauty is on the wane. Carpet bedding, now so fashionable, is well carried out here; and we sketched one of the beds we considered the most effective, at the time of our visit, which is reproduced at p. 183. The effect here is due to the contrast between the rich crimson and purple foliage of Alternantheras amœna and the Golden Pyrethrum. The narrow lines of dwarf Lobelia, on a carpet of Cerastium and Golden Pyrethrum struck us as being a novel feature, although, of course, the variety of these geometrical designs which may be formed is practically unlimited. Indeed, if the carpet bedding here has a fault it is that the designs are too complicated, the colours being divided into small patches, so as to remind one of old-fashioned hearthrugs rather than flower beds. The principal materials used here for carpet bedding are the following, which, for convenience of intending planters and others, we have arranged under the colours they represent.

BLUE.

Lobelia pumila grandiflora
Viola Blue Perfection

CRIMSON AND PURPLE.

Alternanthera amabilis
Alternanthera amœna
Alternanthera spathulata
Coleus Verschaffelti
Iresine Herbstii
Iresine Lindenii
Iresine acuminata

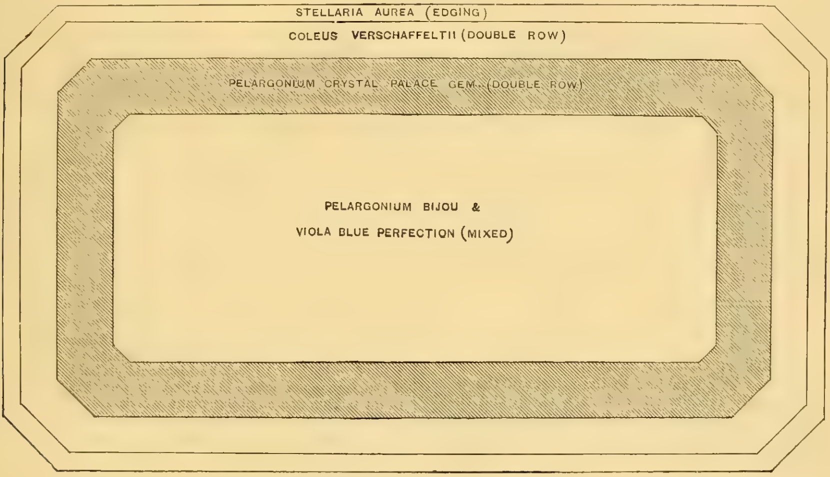
YELLOW.

Mesembryanthemum cordifolium variegatum
Stellaria aurea
Pyrethrum Golden Feather
Pelargonium Crystal Palace Gem
Viola, yellow
Viola, white
Dactylis variegata
Veronica Andersonii variegata
Cerastium tomentosum
Centaurea ragusina
Euonymus radicans variegatus
Pelargonium Bijou
Pelargonium Flower of Spring, and others.

PALE BLUISH-WHITE OR GLAUCOUS.

Sedum glaucum
Echeveria secunda
Echeveria secunda glauca
Sempervivum calcareum
Sedum spectabile

A green dividing line or edging is often useful, and nothing is better for this purpose than Tagetes signata pumila, if kept well pinched or clipped, so as to prevent its flowering, or some of the dwarf Sedums may be employed. One very pretty carpet bed here, 24 feet in length by 12 in width, was margined with large plants of Echeveria secunda, inside which was a narrow belt of Golden Feather, the central oblong having three hexagonal masses of a very dark purple, nearly black, Coleus edged with lines of blue Lobelia and Golden Feather. Around these hexagonal clumps were others cut in half by the margins of the bed, and these were filled in with blue Lobelia, the interspaces being filled in with crimson Alternanthera, edged with a line of green Tagetes. The design or dividing lines in this bed were drawn with a double row of Pyrethrum Golden Feather; and, altogether, this arrangement, although complicated and rather difficult to make plain by description, was very effective as seen under a bright sun, surrounded by bright green turf. Another bed had three six-rayed stars of crimson Alternanthera down the centre, the interstices between these stars and the margin being planted with diagonal oblongs and triangles of Echeveria secunda, golden variegated Mesembryanthemum, and bright red Alternanthera, the whole being margined with lines of Lobelia pumila, crimson Alternanthera, and a single outer line of Echeveria secunda glauca, filled in with Sedum glaucum. This was also a very attractive bed. Some of the beds, filled with ordinary flowering and foliage plants, were very attractive. One of the best is that which we figure, consisting of a large block of Pelargonium Bijou, one of the brightest and best of all silvery-margined varieties, mixed with Viola Blue Perfection. This block was surrounded by a belt of the golden-leaved Pelargonium Crystal Palace Gem, then a band of crimson Coleus Verschaffelti, the whole margined with the bright golden Chickweed. Another arrangement, and a pleasing one, consisted of a block of Vesuvius surrounded by a double row of Pelargonium Flower of Spring and Viola Blue Perfection planted alternately, the whole margined by a narrow belt of Pyrethrum Golden Feather. A similar sized bed to the last, planted with Pelargonium Beauteous Perfection (pink), surrounded by a broad double row of Iresine acuminata and another row of Pelargonium Flower of Spring, edged with Golden Feather, was very simple and attractive. One of the showiest beds consisted of a central block of Bijou surrounded by a belt of Iresine acuminata (crimson), then a row of Crystal Palace Gem (yellow), another row of Iresine Lindenii (purple), the whole margined with the woolly-leaved Gnaphalium lanatum. The centre of another of these block beds, planted with Bijou Pelargonium and the silvery Dactylis variegata, was very bright; and the same arrangement, with the addition of Viola Blue Perfection margined with belts of Iresine Lindenii, Pelargonium Crystal Palace Gem, Iresine Herbstii, Pyrethrum Golden Feather, Alternanthera amœna, and a neat edging of Golden Chickweed, is one of the most effective of all bedding arrangements, and it has the advantage of permanence, even during a wet season, when flowering plants alone are apt to suffer severely, and present a washed-out bedraggled appearance. Some of the square beds here are planted with dwarf or half-standard Roses, some of them with heads a yard through, the perfection of healthy vigour. One of these heads struck us as being very pretty, its whole surface below the Roses being carpeted with Viola Blue Perfection and Flower of Spring Pelargonium, margined with Golden Stellaria. The flower garden at Hampton owes not a little of its beauty and attractiveness to the fresh turf and green shade by which it is surrounded, while the long line of dark green Cedars breaks up the monotony of the long line of flower beds, and the tints of the plants themselves look all the brighter owing to the proximity of their sombre branches and dark shadows on the


STELLARIA AUREA (EDGING)
COLEUS VERSCHAFFELTII (DOUBLE ROW)
PELARGONIUM CRYSTAL PALACE GEM (DOUBLE ROW)
PELARGONIUM BIJOU &
VIOLA BLUE PERFECTION (MIXED)

Flower bed at Hampton Court.

turf; while the sameness of the Yews themselves is agreeably diversified, some of the older and partially-decayed specimens being nearly entirely mantled with clustering glossy-leaved Ivy. Not the least attractive feature here is the vegetation on the garden and Palace walls. The gardener's cottage, near the large Vine is half-hidden by the rambling Wistaria, which, when we saw it a month or two ago, was a perfect sheet of deliciously fragrant lilac-purple flowers. Even now, though there are no Grape-like clusters of flowers, it is one of the freshest of all deciduous climbing plants, and the young foliage is of the tenderest fawn colour imaginable. The walls of the old Orangery are draped with Grape Vines, glossy-leaved Pyracantha, White Jasmine, and climbing Roses, while here and there great drooping masses of Clematis, rich with the wreath of its royal purple flowers, is mingling with the golden foliage of the Japanese Honeysuckle. One of the terraces is ornamented with some fine specimen Oranges and variegated American Aloes, in large tubs; and, along with these, are two large specimens of Aloe plicatilis, a glaucous-leaved species, with smooth strap-shaped two ranked leaves. These are the largest and best-furnished examples we have yet seen; and, according to tradition, they have been here since the reign of Queen Anne. The long ribbon borders on each side of the palace are planted with Crystal Palace Gem Pelargonium, margined with blue Lobelia and Golden Mesembryanthemum, the border behind being planted with Cannas, Hemp, tall plants of golden-blotched Abutilon, Castor Oil plants, and other sub-tropical vegetation. One part of this border is planted with Zonal Pelargonium Stella, in front of which is a broad belt of Golden Pyrethrum margined with Cerastium tomentosum, the back of the border being decorated with crimson Beet, Maize, golden Abutilon, and strong clumps of Sedum spectabile, the walls at the back being draped with Roses, Clematis, Wistaria, and Honeysuckle. A large bed of Tritoma Uvaria, and the bright scarlet Lychnis, struck us as being a novel and effective arrangement. In one of the shrubbery borders we noticed the Buck's-horn Sumach, with numerous white feathery Pampas Grass-like plumes among its glossy pinnate foliage. This is one of the most distinct and effective of all summer flowering shrubs, and well deserves a place among evergreens or isolated on outlying portions of the lawn. F. W. Burbidge.

THE KITCHEN GARDEN.

SALT *v.* ONION MAGGOTS.

Wherever Onions are at all subject to the attacks of the Onion Maggot, I can strongly recommend salt as a cheap and simple remedy. Soot, charcoal dust, and similar substances, are often used, and are all more or less beneficial; but, for a dry porous soil, salt is the best. In addition to its destructive effect upon insects of all kinds, it creates, or fosters, a dampness in the soil that enables a moisture-loving plant, like the Onion, to withstand any sudden drought or change of temperature, to which it may be subjected, with impunity; and it is during such periods that the maggots, if present, are most destructive. Of course, salt does not act upon all soils alike, and it is only by experiment and observation that anything like correct data can be obtained for future guidance. I have generally used one pound of salt to the square yard in two applications, *i.e.*, one half applied with the manure during the winter cultivation, and the other half is sown broadcast over the bed in May, just before the time when the maggots usually make their appearance. No apprehension need be entertained that the application of half a pound of salt to the square yard will do any injury to any growing crop, even when sown indiscriminately over the foliage of the plants, as well as on the bare soil between them. I have sown it broadcast over most kinds of vegetables, and have never noticed any ill effect to occur from its use, unless the quantity I have named has been exceeded. E. Hobday.

Ramsey Abbey.

FEVE DE MARAIS BEAN PODS EATABLE.

All parts of Bean Fève de Marais are eatable; for, unlike certain varieties of Peas and Haricots, their pods are not lined with a substance that resembles a sheet of parchment more than anything else; yet the usual custom is to shell the Beans and throw away the pods. Everyone to their taste; but I consider a Fève de Marais pod, cut into small pieces, a delicious vegetable. It may be added, that this method of utilising the pod augments the products of the plant considerably, the thick and fleshy pods often containing but three or four Beans. Another consideration is, that the vegetable used in the way pointed out can be gathered much earlier that it otherwise could be, as the formation of the Beans need not be waited for. Perhaps prejudiced people will not take the hint; but will, on the contrary, continue to believe that the green pods of the Flageolet Haricot is a dish worthy of being set before a gourmand; whilst those of the Fève de Marais are considered coarse food. I am certain, however, that all who make the trial, without coming to a foregone conclusion, will acknowledge that I have rendered them a service in making known to them a new vegetable, although the plant that produces it is one long known. I may add, that the preparation of the Bean pods for the table is identical with that of the green Haricot. They are soaked in water, stewed in butter, and seasoned with savory, Parsley, and chopped Onions.—F. Burvenich, in "Bulletin d'Arboriculture."

Large v. Small Sets of Potatoes.—Having heard a variety of opinions respecting the supposed advantage of planting large sets of Potatoes, I resolved last spring to settle it to my own satisfaction by a fair trial of large and small sets, planted side by side. For this purpose I selected a peck of the largest American Rose variety—the measure holding twenty Potatoes—and on the 11th of March I planted them a yard apart each way, across a vegetable quarter. I also planted six rows of the same variety with sets about the size of a hen's egg, and I found the results to be, that, although the large sets had the advantage of being the outside row, their produce was the lightest of all. There was a far larger proportion of small Potatoes from the largest sets, as they sent up a greater quantity of haulm; on the other hand, those produced from the small sets were, nearly all, over the average size. The crop, altogether, was very heavy, there being four bushels of very fine Potatoes to each rod of ground. This is partly accounted for by the excellence of the situation, which was one where old Asparagus beds had stood for many years, and where the soil is consequently deeply cultivated, and full of sand and decayed manure; of the latter, scarcely any in a fresh state has been added for the last year or more. I consider that land in good condition, without being freshly manured, is far preferable for Potatoes, to poor land heavily manured. Respecting the quality ef the American Rose Potato, on which such a diversity of opinion exists, I think that results with it are entirely governed by the character of the soil, for in this neighbourhood it has nearly superseded all other kinds, both for cropping and quality, while the produce from the same stock, in some places, is scarcely eatable at any season of the year.—J. Groom, *Henham.*

The Chinese Yam.—A plant of this Yam (Dioscorea Batatas) in my ground (says a correspondent of "Moore's Rural") has already made a growth of 15 feet, and it would probably go as much further if the tree upon which it is climbing was that much higher. The Chinese Yam is a climbing plant worth cultivating for ornamental purposes, even without taking into consideration its edible tuber; but the latter does not continue to grow more than one year, as has been erroneously stated by almost every writer on the subject for over twenty years. In my second season's experiments with this Yam, eighteen years ago, I dug down by the side of some of the plants in August to see how the new tubers were progressing, and to my surprise found the old ones were decaying, just as the Potato decays after fulfilling its mission. At the time just referred to I informed some of the most extensive cultivators of this plant of the error they were making in asserting that the roots were perennial and continued to enlarge from year to year; but they did not correct the false information they had imparted, and hence the repitition of the same ever since. The old tuber of this Yam probably furnishes the new with more nutriment than the common Potato supplies to its immediate offspring, inasmuch as the new tuber on the former springs directly from a bud on the old one, while in our common sort, as is well known, the new crop is produced on subterranean stems quite remote from the parent tuber.

Snowflake Potato.—One pound of this Potato, cut into thirty-six sets, potted and placed in the greenhouse three weeks, then planted out under cloches—two plants to a cloche—showed signs of disease in the haulm; so last week I dug them up and got from them 49 lbs. weight.—J. Marten, *Canterbury.*

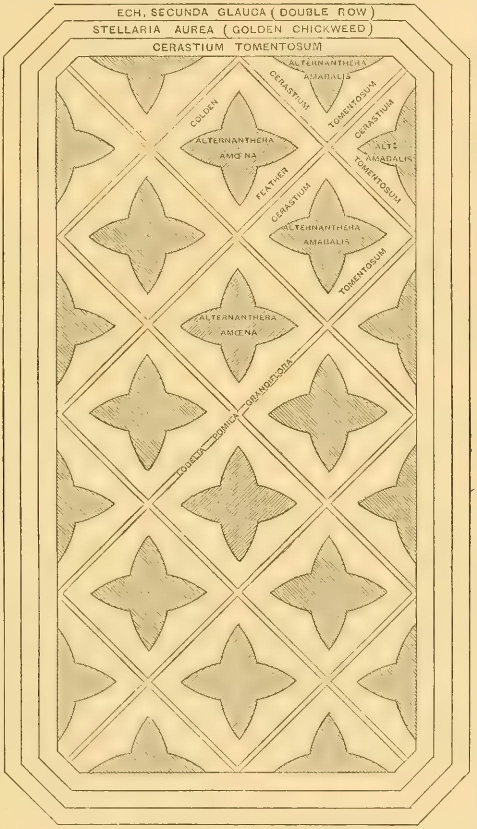
—— One pound of seed of this Potato purchased in spring has produced 69 lbs.—a return unequalled in this neighbourhood, and one which, I think, will bear favourable comparison with any previously referred to in your columns.—C. Turner, *Blythe, Worksop, Notts.*

—— Early in April I purchased three tubers of Snowflake, weighing 1 lb. 1½ oz., which I cut into twenty-four sets, and planted, 2 feet apart between the sets. On the 16th of August I lifted the crop, which was quite ripe and free from disease. Twelve weighed 14 lbs., one 21 oz., and the whole crop 97 lbs. They were planted between lines of young Currant bushes.—J. Morrison, *Minto.*

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Root-pruning Apple, Pear, and Plum trees.—By continually pinching out the points of the shoots of Apple trees they may be kept as dwarf as Gooseberry bushes, and small trees laden with Apples are very interesting, and are suitable for some situations; but thus to induce a diminutive habit of growth entails continual watchfulness, and is simply beginning at the wrong end—reducing the strength of the trees by removal of the leaves instead of curtailing the root-power, whence the superfluous vigour springs. Where very small Apple trees are required they should be procured grafted on the French Paradise stock, which in a small state is favourable to the production of fruit. Trees worked on stocks of this kind can be kept to the size of an ordinary Currant bush and yet bear fine large fruit. They are very suitable for amateurs' gardens of small extent. They also come into bearing in a very short time after planting—generally the second year, if well managed; but, where there is a large demand for Apples, full-grown standard trees are required. These should only receive as much pruning as will keep the branches from becoming crowded and admit light and air to the fruit. I am now speaking of the orchard culture of both Apples and Pears; but, in large kitchen gardens, where it is usual to grow these fruits on the margins of the walks, full-sized trees are not admissible, as they overhang other crops, and, by their shade and exclusion of air, seriously injure vegetables of all kinds. This is still more apparent in amateurs' gardens, even when these are of considerable size; but it is in such situations that root-pruned trees are the most suitable. Dwarf Apples (that is, trees which have little length of clear stem, but which are grafted at a short distance above the ground) are the best. In most cases where the land is suitable for the growth of Apples, the trees of many kinds will grow away freely for a few years after planting without producing much fruit. From the first do not allow more branches to remain than will furnish one tree, as, to let these grow to be afterwards cut away, is simply a waste of strength and loss of time. The nature of the soil, as well as the varieties grown, has much to do with an early disposition to fruit. If, when the trees have attained a height of 6 or 7 feet, and a proportionate breadth, they do not, by forming a sufficient quantity of fruit spurs, show an inclination to bear, this is generally owing to over-luxuriance, which can be checked by root pruning. The best time for this operation is in September, after the summer growth of wood has been completed. Open a trench, a foot wide, on two opposite sides of each tree, at, for the size under consideration, a distance of 3 feet from the stem, this time pruning only half-way round the trees; the trench must be opened as deep as the roots extend, cutting them all clean off to within the 3 feet space between the trench and the stem. When there are any that are more than ordinarily strong, and that bear the appearance of having what are called tap roots, the soil should be worked away underneath, so as to get at these, and cut them off, as in the case of those that grow in a horizontal direction. This treatment generally has the effect of causing the trees to set a considerable number of fruit-buds, to be still further increased the season following. If, in the ensuing season, they continue to make too much growth, the remaining opposite sides of the trees (the roots of which have not yet been cut back) should be operated upon. Unless where the soil is of a wet, tenacious nature, trees so treated will generally not require their roots being further interfered with for three or four years, when, if again too strong to be productive, they may be similarly root-pruned at about 12 inches further from the trunk. At the winter pruning, each season, the leading branches should be shortened back to some 6 inches of the point to which they were cut the year previous, until the trees attain a height of about 9 or 10 feet. This is as large as they ought to be allowed to grow in such gardens as those under consideration. When they show a disposition to make too much wood at the expense of the fruit, the roots must again be shortened; by this means they can be kept for an indefinite time in a fruitful state. Root-pruning, either with large or small trees, should rather be accomplished early in the autumn than later on in winter; it must never be attempted in spring, when growth is about to commence, or its effects will be most injurious. Bush-shaped or pyramidal Pear trees in such gardens must be similarly treated in every way. Many varieties of these fruits will not bear satisfactorily until they have attained a large size, unless growth is checked by root-pruning. Plums do not usually grow so vigorously; but, to keep them within bounds as regards size, it is often necessary to resort to the reduction of root power. One great advantage with trees, managed as above, is that the manure used to the vegetable crops grown near them has not the effect it otherwise would have of producing rampant unfruitful growth. On light dry soils manure is beneficial in its effects upon the fruit of root-pruned trees.



Carpet bed at Hampton Court (see p. 180).

Flower Garden.—Go over the whole of the beds in the flower garden, and regulate the plants so as to give an air of complete order—a condition always to be desired, but that has been secured in few places this summer. It seldom happens that the necessity for a good reserve stock of any subject, at all uncertain in its growth, has been so apparent as during the present season, when the earliest planted of many varieties partially failed through the cold that was so generally experienced. It is well now to go over the flower garden, note-book in hand, making an entry of the plants that do best and those that fail, as also to determine what changes are to be made next year, not only as regards alteration in the arrangement of colour, but also in form; the latter of which we hold to be of even greater importance than the former, for, by a judicious use of a few taller-growing, elegant-habited plants, to relieve the generally too evenness of surface of the greater portion of summer bedding plants, a great deal of what is objectionable that exists in this style of gardening can be avoided. For instance, if such plants as Humea elegans, Acacia lophantha, Grevillea robusta, and many others of slender open habit, are sparingly used in the beds they relieve the even surface without hiding to any appreciable extent the colours of the principal occupants. The effect that such plants used in this way would have, can, at this season, when the beds are full and at their best, be better judged than at the time of planting. Carpet beds might cease to bear too close a resemblance to carpets if the arrangement was a little more varied in surface, and would be none the worse for the modification. Whatever alteration is to be made in the ensuing season in these matters can only be adequately provided for by being determined upon at the present time, so as to admit of the necessary propagation of the plants required. Wallflowers, Foxgloves, Sweetwilliams, Dianthus, and other things of similar nature, that were sown earlier in the summer, will now be ready for transplanting from the seed-bed. Choose for them an open situation, the soil of which should be light, so that when in the spring they are removed to their flowering quarters, this can be done without so much injury to the roots as when grown in adhesive ground. For everything of this kind the soil must not be too rich, as over-luxuriance should be avoided in all that can be injured by a severe winter. Put in the plants at a distance of 8 or 10 inches apart: if they are too much crowded they get drawn, and are correspondingly weak.

Chrysanthemums.—These plants will now have filled their pots with roots, and must be well supplied with manure-water; upon keeping them moist at the roots depends their ability to retain their leaves in a healthy condition, as also their power to produce good heads of flowers. Keep the shoots well tied out so as to allow plenty of air to circulate amongst them. Turn the plants round so that any roots that have grown through the pots may not get much hold of the soil on which they stand; for, should this occur to any considerable extent, they will suffer correspondingly when removed later on.

Storing Potatoes.—Potatoes, when lifted, should be stored in a dry place, and not laid more than a foot or so in thickness. Under such conditions, they can be turned over three or four times at intervals of ten days or so, each time picking out any that show signs of decay. Those that remain sound after that will be likely to keep. Potatoes should always (but more especially when disease is prevalent) be stored in a cool and thoroughly dry shed, where air can get to them, except in frosty weather. As a matter of course, they must be kept in the dark, or they will become more or less green, which impairs their value as food.

Winter-flowering Carnations.

Where flowers are wanted at Christmas and early in spring, these will require special attention. Stopping should be discontinued; but they should be cleaned, neatly staked, and placed in a cool pit or house where plenty of air can be given them, so as to encourage strong growth. Before placing them in the pit or house, however, it is advisable to top-dress them with some fresh loam, and to give them a good watering with soot-water, or a weak solution of lime-water, to drive the worms out of the pots. They will also require dusting occasionally with sulphur, as they are very subject to mildew and red spider, from both of which they often sustain injury. In sulphuring, Carnations require to be carefully gone over, so as to distribute it regularly in their stems; and, after it has been on three days, wash it off with the syringe, and clear the foliage of all dirt or sulphur. After the plants have commenced to grow, water with weak guano-water or Standen's manure about once a fortnight. Keep them neatly tied up, but not so closely as to prevent the air from circulating among the shoots; for, when bunched up to the stakes with one tie, mildew and green fly often do considerable damage before they are noticed; the pores of the leaves and shoots get gummed up, and the plants lose their vigorous appearance. In the case of large plants, at least three or four stakes should be used. If the plants are well looked after, they should commence flowering in November and continue till March, and old plants will furnish plenty of autumn bloom.—H. G.

Hardy Flowers.

The weather this year has necessitated a good deal of extra work in the mixed border (though certainly it has been partly counterbalanced by the water-pots not being required) first by the unusual amount of weeds which have been most persistent in making their appearance, and also by all the taller-growing perennials requiring more than the usual amount of staking to secure them from the violence of high winds. The great quantity of rain has, however, been very beneficial to the larger-leaved plants, grown for the effect of their foliage; and the Phloxes (as is the case in a wet season) have derived great benefit, and, I think, are finer than usual. The great flush of bloom amongst hardy perennials is now past, but there are still many both in, and coming into, flower. The earlier flowering herbaceous plants may now be taken up and divided with impunity, and the trimmings removed to the wild garden or elsewhere. I know that the spring is the general time for division, or when the plants are just showing for their year's growth, but I find my own plan answers very well; moreover, they are now easier seen than when they first come up, and some of the labels are sure to get lost by next year, so that one is hardly certain of what is being divided. Give a thoroughly good soaking of water after transplantation, holding the can high enough to dash the earth well into the roots of the plant, and wait an hour or so before filling up the hole to the level of the surrounding ground. In fact, the transplantation of herbaceous perennials is a matter of the greatest ease. Part of our mixed borders here are cut off from the kitchen garden department in the following way:—We have three moderately thick galvanised wires (four would have been better), with a standard every 10 yards apart, and the whole is strong enough for the support of fruit trees, if it should at any future time be required for that purpose. The whole length is about 100 yards. At every 10 yards we have a strong climbing Rose, and between each Rose is one of the newer hybrid Clematises and a Passiflora cœrulea. At every 5 yards apart is a strong plant of Hollyhock (at the back of the wires) and at the same distances asunder (but in front) is a clump of Dahlias. This floral trellis-work when established will shut out the vegetable department, but as yet the plants do not hide all the wirework. I hope in time to continue the same entirely round the kitchen garden, as well as on each side of the main walk. I need not say that the beds are well filled with most of the best hardy perennials. Any of your readers fond of a fine showy plant should grow Aconitum paniculatum, now in bloom; it grows 5 or 6 feet in height, or even more, if indulged with a little vegetable soil, and it has fine dark blue flowers, which were very freely produced, and deep green shining leaves. A. variegatum is also in bloom, and well worth cultivating. It does not grow so tall as the preceding, but produces in abundance sky-blue flowers variegated with white, and is a useful plant for forcing. Other late blooming Aconitums, all of which are well worth attention, are A. autumnale, a fine stately plant with large pale blue flowers, and A. septentrionale, a kind which grows 4 feet in height, with reddish-purple flowers and deep green leaves. A. lycotonum is past its best, but still shows an odd bloom or two, of a yellowish-cream colour. All the Aconitums grow vigorously in good garden soil, but a little vegetable mould is very beneficial to A. paniculatum, and perhaps to A. septentrionale. In many places Aconitums have been banished altogether from the garden, from an idea that their roots might be mistaken for Horseradish, but they are too showy and distinct to be thus discarded. All the family are most useful in the wild garden associated with Larkspurs, Peonies, Phloxes, &c., of course associating them with the species flowering at the same time of the year, as, for example, the autumn Aconitums with the Phloxes, and various species of Helianthus, and the summer-blooming kinds with the Peonies and Larkspurs.—Oxon.

The Flower Garden and Pleasure Grounds.

In most cases the flower garden will still be in the zenith of its beauty, but the turning point has now been attained, and it must be expected that a slight falling-off will ere long be perceptible. Continue, however, to attend carefully to all routine and necessary operations, such as mowing, sweeping, rolling, weeding, &c., so that order and neatness may, as far as possible, compensate for waning beauty. Beds of Pelargoniums, Verbenas, &c., should be frequently looked over, in order to remove decaying leaves and blooms; and all annual flowers, whose beauty is past, may be removed altogether, unless seed from them is required. When such is the case, let it be carefully gathered as soon as it becomes ripe, to be afterwards dried, cleaned, properly named, and stored until required. Where layers of Carnations and Picotees are sufficiently rooted they may now be separated from the stocks, and planted in properly prepared beds of soil. But, in most cases, it will be advisable to pot a portion at least of such plants, and give them the shelter of a cold pit or frame during winter. Beds of Pinks, Sweetwilliams, Wallflowers, Stocks, &c., may now be planted out at once. Attend to the various kinds of spring plants, with which it may be intended to furnish the beds when the summer plants have been removed. No time should be lost in ordering the various bulbs which are likely to be required for this purpose, while those kept in store should be examined and got in readiness. The staking of late flowering herbaceous plants, of all sorts, should likewise receive attention, to prevent injury to them from high winds, &c. The various kinds of Chrysanthemums are very useful as late flowering plants, more particularly the Pompone-flowered sorts. When large flowered kinds are used for open air culture, a selection should be made from those that bloom earliest, as they will be found to be most useful for the purpose. The present is a suitable time for carefully inspecting the arrangement of the flower garden and grounds generally, as the foliage of trees and shrubs, as well as the plants occupying the flower beds and borders, are all now in a fully matured condition; and any necessary alterations or improvements in future arrangements will be likely to suggest themselves, notes being taken at once for reference at the proper time. Very much may frequently be done by judiciously blending or arranging the various shades of colour, in the matter of foliage as well as of flowers, the effect of which it is not always easy to realise until seen. But, among combinations in flower beds, which are generally found to be effective and pleasing, may be mentioned that which has been styled the shot-silk bed, produced by the admixture of Mangles's silver variegated Pelargonium, with Verbena venosa; pink-flowered Pelargoniums, with some of the finest varieties of Viola cornuta; and gold and silver variegated Pelargoniums, with Lobelia Paxtoni, &c. Beds planted in the carpet style, to be really effective, must have their divisional lines, &c., kept well defined by repeated pinching or stopping; and, to do this thoroughly (unless the system is practised upon a very extensive scale) requires but little labour; the necessary amount of timely attention, however, must be devoted to the plants, otherwise this style of gardening should not be attempted.—P. Grieve, *Culford, Bury St. Edmunds.*

Indoor Fruit Department.

Vines.—Now is the best time to cover outside borders attached to Vineries in which Grapes are intended to hang during the greater part of the winter; when delayed until further on in the season the soil often gets thoroughly wet, and the benefit which should result from covering is never realised. Where the border is thatched or covered with litter, clear it all away, and lightly fork over the soil before putting on the covering. Thin deal shutters, in breadths of 6 feet by 12 feet, make the best protectors. One end should be placed close against the front of the house, on two bricks, one above the other, and a shutter 12 feet from this is generally sufficient protection; the lower, or bottom end, should rest on one brick; thus sufficient incline is given to throw off the water, and space is left between the boards and the soil to allow a free circulation of air. Glass sashes do quite as well as wooden shutters; but, during autumn and winter, these are generally needed for other purposes. Tarpaulin may be used where neither of these protectors can be had, but it is inferior to both of them. The outside borders of houses in which the Vines are to be started into growth about November, should also be covered; for, when chilled with autumn rains, the hot manure which will have to be placed on them is long in exerting any influence on the roots.

Pines.—Queens, intended to be started in the end of December or beginning of January to supply early fruit, must now be kept somewhat drier at the roots than they have hitherto been, and manure-water need not be longer used. The bottom-heat should be allowed to fall to about 70°, and plenty of fresh air should be allowed to circulate about the plants on fine days. Where plants have not been specially prepared for fruiting early, the most mature-looking should be selected for this purpose. Suckers of all kinds may still be taken off and potted. They will require a bottom-heat of 90° until they are rooted, and plenty of light, in order to ensure their keeping well throughout the winter.—J. Muir.

Hardy Fruit.

The generally-accepted belief that a cold wet summer is inimical to wasp life will, after this, require to be considerably modified; for, though the season has been one of the coldest on record, the wasps are more numerous than they have been for many years. Not being able to discover the reason of this myself, I shall look with interest for a solution of the problem by some naturalist who has made the subject a matter of special study. All kinds of fruit, from a Blackberry to a Pine-apple, are attacked by wasps, and, though we have destroyed scores of nests, trapped thousands of the insects in bottles and hand-lights, and tried the worse than useless "wasp destroyer," still they come in myriads, and the most effectual remedy we have yet discovered is protection by means of stout tiffany, scrim canvas, or hexagon netting. Fruit-gathering will now be the special business of the present season, in doing which too much care cannot be exercised that none gets bruised; such work is generally too carelessly done. Peaches, Nectarines, and Plums should be put in single rows on thoroughly ventilated shelves, and they will then keep a considerable time without deterioration in flavour. Early-ripening kinds of Apples and Pears should also be treated in the same manner; but later kinds, when room is scarce, will not be injured if placed carefully one upon another, and singled out as room is made by using the earlier-ripening fruit. Should the present warm weather continue, late kinds of Peaches—and, indeed, all the trees where the fruit is not actually ripe—will be much benefited by a sprinkling overhead with the syringe every evening; the perceptible improvement in the condition of the fruit will be sufficient repayment for the few minutes' labour entailed. Keep the shoots laid in, and exposed to the sun as much as possible, that the wood may get brown and hard, in which state only it can effectually resist the frosts of winter. If it were always remembered that well-matured wood is the first requisite in successful fruit-culture, no effort would be spared to produce it. It is now getting late for pinching or stopping back superfluous growths on most kinds of fruit trees; but cordons of both Apples and Pears will be much improved, in appearance, at least, if still kept closely pinched. On such trees the restrictive principle seems, rather than otherwise, to have a beneficial effect.—W. Wildsmith, *Heckfield.*

THE FRUIT GARDEN.

INFLUENCE OF SHELTER ON THE EASTER BEURRE PEAR.

The account (see p. 54) of an Easter Beurré Pear tree, at Enghien, which produced fine fruit by sheltering the tree with a screen, reminds me of a similar case as regards the same Pear in my neighbourhood, thus showing how important shelter is to certain varieties. The owner of the tree in question, who was quite a Pear lover, had some dozen or two of the finest sorts in his garden, and among them the Easter Beurré, but it was as refractory with him as with others, the fruit being quite hard and uneatable. He therefore determined to improve it, if possible, and, after some little consideration, hit upon the following plan. As is usual with amateurs in this country, he had a few hot-bed sashes, under which he started early vegetables, and with eight of these he decided to box the tree up. They were some 4 feet wide, and he placed one row on the top of the other, and, temporarily nailing all together, finished by placing one on the top. Under this treatment he reaped a good harvest of most beautiful Pears. Having thus subdued the tree, he continued every year to produce the Easter Beurré in perfection. This year, however, we have had a very remarkable summer, such as we have not had before, certainly for thirty-five years. Nevertheless, there is not a cracked Pear on our whole collection of trees, and the White Doyenné and Brown Beurré, which have never failed to crack, are this year as perfect, smooth, and high-coloured as in the best of seasons. On June 10th 6 inches of rain fell in twenty-four hours, saturating the ground; since then the thermometer has been below 60° at sunrise but six or eight times, and then only fell to 54°. Many mornings it has reached 70°, but the range has been 60° to 68°. We have only had one or two days above 90°; yet, up to this date, we have not one speck of mildew on our hardy Grapes, which are every year more or less injured unless closely looked after and sulphured. I attribute their escape to the abundance of moisture which we had early in the season and to an even temperature—no actually dry weather, no dry north-west winds, no cold easterly ones, no cool nights, and no hot days. Judging from appearances the Pear crop will be the cleanest and finest we have ever had. C. M. Hovey.

Boston, Mass.

Figs in Dumfriesshire.—In reply to Mr. Robert Kennedy (see p. 165), allow me to say that my report referred only to this place. Having room under glass to grow a full supply of Figs, it is not necessary to attempt their culture out of doors. To the best of my recollection, there are Figs on the open walls at Eccles yet. But Mr. Kennedy will, no doubt, recollect how very much more favourable the situation of the gardens at Eccles is compared with that of Drumlanrig; also, how much warmer both the soil and sub-soil are. Regarding the climate having undergone a change within the last four or five decades, it has been asserted in proof of its deterioration that many years ago the Hydrangea lived here all the winter out of doors. It does so yet, and so does the Camellia, which blooms beautifully, although this is one of the wettest and most frosty of climates. It is, therefore, no fair example of the climate of this country. Lower down the river, Figs ripen perfectly well.—D. Thomson, *Drumlanrig.*

Shanking of Grapes.—My Golden Hamburghs fail in a singular manner. They grow in the same house with White Frontignan and Black Hamburgh, both of which do well; but the Golden Hamburghs always fail just about this time. Can you tell me what ails them?—R. Ruding. [They are badly shanked, a common occurrence in the case of this not very useful variety. The evil is generally caused through the roots being in unsuitable soil; but this can hardly be so in Mr. Ruding's case, inasmuch as the White Frontignan and Black Hamburghs are reported to be doing well under the same circumstances. Some varieties will shank in spite of every precaution in certain localities. I would recommend Mr. Ruding to root out the Golden Hamburgh, and replace it with Duke of Buccleuch, which is a good companion for the sorts named.—J. Muir.]

Rivers's Early Beatrice and Early Louise Peaches.—In reference to these varieties, to which you recently alluded (see p. 146), allow me to say that the trees have had no protection whatever, either in winter or spring. These two sorts, will, I think prove of great value, as they may be grown by cottagers in all the southern districts of England, and will materially add to the supply of cheap Peaches in England. I am told that one man in Maryland, United States, has 30,000 trees of the Early Beatrice in bearing; and that he has already reaped a rich harvest in money from them. Now, with some slight protection in adverse seasons, I do not see why the same thing should not be done in England.—T. Francis Rivers, *Sawbridgeworth.*

Gooseberries on a North Wall.—One of the most interesting objects in the well-conducted kitchen gardens at Thoresby Park, under the management of Mr. Henderson, is a wall of Warrington Gooseberry trees. They were planted not many years ago, some 2 or 3 feet asunder, against a north wall, and trained vertically, each branch being about 4 inches apart, and the wall is now almost entirely covered with them. It is pretty to see such an extent of neatly-trained cordons regularly furnished from top to bottom with fruit and foliage. Mr. Henderson informed me that his wall Gooseberry trees were of more service to him than all his other bushes put together—the crops were so certain, so regular, and could be so conveniently preserved on the tree till late in the autumn. The branches, having a considerable vertical extension on a wall 12 feet high, are not disposed to make gross lateral growth; and the summer treatment consists in simply shortening back the breast-wood, which in winter is finally pruned to short spurs in the usual way.—J. S. W., in "Gardener."

Watering Fruit Trees.—As a general rule, watering young trees in summer does more harm than good, by crusting the surface, without reaching the roots; and even if the roots are reached, the relief is only temporary, unless the watering is regularly repeated. There is a great want of appreciation of the amount of water required for the trees by those who apply this remedy. A young tree 4 or 5 feet high, if growing well, soon throws out roots several feet on each side. If these roots are only 3 feet long, the circle of roots will be 6 feet in diameter, and at a depth of only 1 foot there would be no less than 37 cubic feet of earth to saturate with water, requiring for one-fourth the bulk nearly one hogshead for a single watering. It is true that a young tree just planted may have had its roots cut much shorter, but as new ones are to be quickly thrown out into the soil as it commences growth, watering within restricted limits will do but little good. Clean, mellow culture, and wide and heavy mulchings are better than all the watering that can be given.

Culture of Orchards.—Intelligent orchardists generally recommend that young trees be kept well cultivated, with a clean mellow surface, until they come well into bearing, after which the cultivation may be discontinued, and the ground perhaps seeded to Grass, to be kept cropped short by animals, or cut and allowed to rot on the surface. By this course the young trees, when cultivated, grow rapidly, making shoots from 1 to 3 feet in length; but, when they come into bearing, they grow very slowly, the double check given by bearing and by the want of cultivation causing a growth of only 3 or 4 inches a year. Now, the question occurs—is this the best way? We desire, of course, to have our young trees come forward rapidly, so that they may have size enough to yield ample returns; but, when we remember that thrifty trees usually bear fruit that is larger and better in quality, ought not the vigour of the trees to be continued, at least to a certain degree, especially as heavy crops must always tend to check and exhaust them? In some soils, the application of yard or stable manure is found essential to the production of good fruit; why should not this be applied in addition to mellow surface culture, in order to compensate for the increased demand made on the trees by the production of fruit?—"Cultivator."

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Gilbert's Victory of Bath Melon.—I have found this one of the freest setting Melons I ever met with. It swells off its fruit well, but I find that it is so apt to decay under frame culture that I shall not grow it again. A near neighbour of mine has the same fault to find with it; and, if it does not rot, it cracks badly when grown on a trellis. In pits heated with hot water I dare say it is good. What has been the experience of others with it?—J. Taylor, *Hardwicke Grange.*

Duke of Buccleuch and Golden Champion Grapes (see p. 144).—Allow me to inform Mr. Sheppard that the colour of the fruit of the Duke of Buccleuch Grape is a beautiful bright amber; while that of the Golden Champion is, as its name implies, golden. The berries of the Duke are quite round, like those of a Black Hamburgh; those of the Champion oblong, like those of a Muscat of Alexandria. The bunches of the Duke are broad and compact; those of the Champion generally long; and, lastly, the Duke is entirely exempt from the spotting which, in many cases, has injured the Golden Champion. Altogether I consider these two Grapes very different from one another, both in form and flavour.—A. B. Young.

Golden Queen Grape.—Mr. Pearson, of Chilwell, offers prizes for Golden Queen Grape, namely, £5, £2, and £1, for the best bunches of this variety, to be exhibited, as hereafter to be announced, in the autumn of 1877.

TREE GROWTH IN 1875.

How have large timber trees grown in different districts this year throughout the country? Here their aspect is deplorable. This is more especially true of the Oak and Beech, on which, out of scores of very fine trees, I have not been able to find a single growth of this year that measures an inch in length, and this, although in a lesser degree, occurs in other species. The leafage is also unusually small, and this is most apparent in the Beech. I venture to say it is not often in one's life that we shall have the chance of seeing these trees so loaded with nuts as they are now; they are literally breaking down with them, their matured brown colour, and the diminutive leaves, entirely altering the aspect of the trees. In the spring, it was altogether different; the lovely pale green leaflets mingled with the graceful flowers, producing a very beautiful effect. In my opinion, neither the Chestnut nor the showy Laburnum is to be compared to this tree in appearance. I fear this heavy crop of fruit will have a very destructive influence on trees that are old or impaired in vigour. Indeed, it may be safely said, a repetition of last year's drought would utterly ruin them. As it is, some few here are dead, or dying; and it must be long before many others can recover. Next to the Beech, the Oak seems to have felt last year's drought the most; but whilst the Beech is so loaded with fruit, the Oak has scarcely a single fruit on it. The growth is very small, and this, added to the effects of a blight, which has caused the leaves to turn brown, gives the trees a dejected appearance. J. T.

Hardwicke Grange, Shrewsbury.

THE FOUNTAINS IN TRAFALGAR SQUARE.

Two Fountains bubble in the Square,
Whose pillar, towering nigh,
Hoists Nelson up, as though he were
Stylites, to the sky.

When bubbling in their usual way,
They foam like ginger-beer
Uncorked upon a sultry day
In summer time of year.

To boil, as well as bubble, they
At times, however, seem,
And like a pair of Geysers play,
Emitting clouds of steam.

And, hinting somewhat like the pest
Which River Nile turned rouge,
One day last week each Fountain's crest
Was tinted with gamboge.

Thy Baths and Washhouses are near,
St. Martin: know'st thou why
Those Fountains twain hot springs appear,
And whence their yellow dye?

Tinged, save with rainbows' native hues,
Should fountains n'er be found,
But cool refreshment still diffuse,
A healthful influence round.

Most in hot weather ought they not
As crystal pure to gush,
At no time vomit reeking hot
Slops, scourings, suds, and slush?

Sweet Saint, from sordid tricks withhold
Parochial persons mean:
And make those Pumps keep fountains cold
Supplied with water clean. —"Punch."

[As we have often pointed out, these fountains are a costly and offensive means of "embellishing" Trafalgar Square. It would be much better to remove them and plant a few trees that would live. The space occupied by the wide water-basins could be devoted to a better purpose.]

Mr. Gladstone on Cottage Flower Shows.—One great merit of these institutions is the encouragement they give in a sober, quiet, unobtrusive way to a most healthful emulation among the people for a description of distinction which does nothing but good to themselves and everybody else. It is most important for us all to be conversant with the works of Providence in Nature. A garden is almost always to a poor man—to a person to whom it is of great importance to economise his means—a source of considerable addition to his bodily comforts and to those of his family. Besides that it is a source of great delight to him, and tends to instruct his mind both by information and observation of the most interesting kind, and also by teaching him to turn his mind to the Providence who gives us all the fruits of earth in order to meet our wants. A more healthful pursuit there cannot be conceived—healthful for the body and healthful for the mind.

AN HOUR AT BELGROVE.

Belgrove, the residence of Mr. W. E. Gumbleton, is beautifully situated on the east shore of that prettiest reach of Cork Harbour, known as East Ferry. Sloping gently from the water's edge, it is flanked on one side by Eastgrove, belonging to Mr. Bagwell, and on the other by Mr. Smith Barry's thriving plantations, which clothe the adjoining heights. The house is arrived at on the land side by an approach which, for some short distance after passing two quaint, old fashioned lodges which flank the entrance-gate, is down hill; it is then carried along the levelled brow of a deep glade till the house is nearly reached. The visitor on entering upon this picturesque portion of the drive requires no one to tell him in what direction the owner's tastes lie; for indications meet the eye at every step in the shape of some rare new Conifer, flowering shrub, or hardy Fern. Parting company with the glen, we pass a low wall of brick, which separates the flower ground from the drive, and which is covered with Ceanothuses, and other flowering shrubs, and that most compact and useful of creepers, Ampelopsis Veitchii. Arrived at the hall-door, we see something rather novel in flower on the wall beside it, which on closer inspection is found to be the beautiful, but as yet rarely met with, Berberidopsis corallina. Met here by a friendly welcome from Mr. Gumbleton, we at once entered the small square conservatory attached to the house; this was all aglow with colour, its occupants being nearly altogether the newest and best variety of zonal Pelargoniums, single and double, Coleuses, Fuchsias, and tuberous-rooted Begonias. Among the Pelargoniums we most fancied Jewel, a double variety; among the Coleuses, Duchess of Edinburgh; and among the Fuchsias, Sir Garnet Wolseley, a marvellous variety. There was a specimen of Disa grandiflora, bearing some thirteen flower-stems and many more flowers, growing in an 8-inch shallow seed-pan. Leaving the conservatory, we found the border outside occupied with plants of Lobelia pumila magnifica, Unique, Lady M'Donald, and all the newest varieties of bedding Lobelias. In the way of ordinary bedding, there were a couple of elongated narrow S beds, the arrangement of which consisted simply of a central line of that best of bicolors, Marshal MacMahon, flanked on either side by a blue line of Lobelia Henderson's Lustrous, and the effect was very good.

Turning from these, the eye at once rested on an oval bed entirely filled with some two dozen choice varieties of the new tuberous-rooted Begonias, all in flower, and very beautiful. Among the more striking were Vesuvius, Jules Hye, Rubens, Coraille Rose, Paul Rasoul, F. Lecomte (deep rose), Etna (rich orange, beautiful dwarf habit), President Schlastum, &c. Here, too, was Lemoine's dwarf new double Begonia, named Monstruosa. The race of tuberous-rooted Begonias can scarcely be too highly appreciated for bedding purposes, or for the decoration of the conservatory, greenhouse, or drawing-room, during summer and autumn. Turning from the Begonias, the eye was next arrested by the tall and gracefully drooping flower spikes of the dark purple variety of that loveliest of hardy bulbs, Sparaxis pulcherrima, and the stately spikes of Souchet's magnificent and highly-coloured Gladiolus Hercules, one of this raiser's best kinds. The new double Lilium tigrinum likewise formed a feature; as did also the dark purple globes of Allium roseum, a plant not so often seen as it deserves to be. An ornamental Grass, with variegated leaves and graceful spikes, appeared to us to challenge precedence with the old and elegant Stipa pennata. A circular bed was filled with the newer bedding bicolor Pelargoniums, such as Princess of Wales and Mr. Quilter, which appeared to be the best of them; but none of them seemed to be better than Marshal M'Mahon and other established favourites. Plants of the new Abutilon Darwini, A. Boule de Neige, and beds of Tropæolum Ruby King, and the much more to be prized T. Minnie Warren, did not fail to attract attention—the last a golden bedding plant of much merit.

Among the more noteworthy plants was the finest specimen of Arundo conspicua that had come under our notice. It bore forty spikes, the plumes being of a silvery-whiteness, not the dingy colour generally seen. Besides the ordinary Pampas Grass, there were three varieties of it pointed out—Gynerium Lambii, the Dwarf Variegated, and G. argenteum limbatum. Along a border here, with a view to test their merits, Mr. Gumbleton has planted a whole series of ornamental flowering Pyrus, and he has also brought together some two dozen or more choice species of Philadelphus or Mock Orange. Along the glen portion of the drive we noticed, among other varieties, the variegated Cupressus Lawsoniana and C. Corneana, Retinospora squarrosa, Embothrium coccineum, Idesia polycarpa, the Rice Paper plant, three varieties of Phormium tenax, viz., P. atropurpureum, P. Veitchii, P. Colensoi variegatum, the last-named in flower, Hydrangea paniculata var. grandiflora, and, though last, not least, one of M. Van Houtte's Hydrangea rosea alba, which is one of the loveliest of flowering shrubs. Its corymbs of white and crimson splashed flowers are indeed striking, whether seen on the plant or in the flower-vase on the drawing-room table. In a detached portion of the lawn, Mr. Gumbleton has recently planted almost every variety of choice shrub—hardy, half-hardy, or expected to prove so. I may add, in conclusion, that to Mr. Gumbleton we are much indebted for devoting so much of his time to testing the merits or otherwise of many of the aspirants which are yearly sent out.—" Irish Farmers' Gazette."

NITRATE OF SODA *v.* GUANO.

So much has been written (says Mr. J. B. Lawes in the " Times ") on the side of the Goverment, of bondholders, contractors, &c., upon the subject of Peruvian guano, that you may not be unwilling to hear what may be said on behalf of cultivators who have been and are expected to be the purchasers and consumers of this manure. From a time antecedent to the first introduction of guano into this country, continuous and extensive investigations into the action of various manures upon crops have been carried on by me. In 1845 Peruvian guano was one of the substances experimented upon; my knowledge, therefore, of this manure extends over a period of thirty years. The earlier supplies were derived from the Chincha Islands. This guano was dry, uniform in quality, and contained 15 to 16 per cent of ammonia. At the selling price it was the cheapest manure a cultivator could use. Since the exhaustion of the Chincha Islands no guano of similar quality has reached this country. The best is very inferior; the worst is not worth one-half as much. The term " genuine as imported," is supposed to cover all defects, and the agents of the Peruvian Goverment have demanded a uniform price for a substance which has varied greatly in quality. It is not surprising, therefore, to find that there has been a great falling off in the consumption of guano in this country. Parallel with this decline has arisen a greatly increased consumption of nitrate of soda, a manure in my opinion much superior to guano, and having the great advantage of being of uniform composition. It is stated on the authority of Senor Martinet that between 1868 and 1873 the export of Peruvian guano fell off to the extent of 200,000 tons annually, while the export of nitrate of soda increased from below two millions to nearly six millions of quintals during the same period. The abundance of phosphates discovered of late years in this country, as well as in other parts of the world, has given rise to an immense branch of industry in the manufacture of soluble phosphate for manure, and has at the same time greatly reduced the value of phosphate in guano. The only ingredient which a cultivator requires when he purchases Peruvian guano is ammonia, and he can at the present time purchase more of this substance in nitrate of soda for £12 than he can purchase for £20 in guano. Added to this, nitrate of soda is sold with a guarantee of quality, while guano is sold without any, and the only wonder is that any purchaser of guano can still be found. It is the prestige of the name which retains a certain class of customers, but there is a large and daily increasing number who know that the value of a manure depends upon its chemical composition, and who will not purchase any unless this composition is assured. It has, I believe, been suggested that by levying a heavy tax upon nitrate of soda, and thus greatly increasing the price of this substance, we may be driven to purchase more guano. To what extent it would be possible to arrest the consumption of nitrate of soda by such a proceeding I am unable to say, but I feel certain that it would have no effect in increasing the sale of guano. At the present time we are profoundly suspicious regarding the quality of guano, and the analyses of the new deposits from which the supplies are now being worked do not tend to reassure us. Judging from these analyses I should say that the quality is very fluctuating and that on the whole a considerable reduction in the present selling price must be submitted to before any considerable increase in sales can be effected in this country.

Slugs in Alpine Borders.—As slugs have been unusually numerous this season, I would strongly advise all who have Alpine borders to look after this pest; this is especially necessary where a new border has been made, or, like my own, partially re-arranged. In a few nights I have caught nearly a thousand by going out about ten o'clock with a lantern. Do not imagine after the first night you have caught all, even if you have secured some hundreds; but go out the next, and probably you will be almost as successful as on the first night. Look carefully over such plants as Jasione humilis, the flowers of Campanula, &c.—Beeks.

American Breadfruit Potato.—This variety, sent out last spring as a new kind, proves to be simply the well-known Breese's Prolific. The seed sample sent out was apparently so distinct that I quite believed the Breadfruit was a new and really good kind; I have been, however, disappointed. Sending out the Prolific under the name of Breadfruit demands an explanation, and I trust that purchasers of it, like myself, will speedily be vouchsafed one. It is also well that intending Potato exhibitors should be warned of the risk of disqualification they incur should they stage Breese's Prolific and the so-called Breadfruit in the same collection.—A. D.

SOCIETIES AND EXHIBITIONS.

ALEXANDRA PARK.

August 24th.

SHOW OF AUTUMN FLOWERS.

At this exhibition, Dahlias, Gladioli, Roses, and Asters, were tolerably well represented; Hollyhocks were poor, as they are nearly everywhere this season.

Certificates of Merit.—These were awarded to the following:

Gladiolus Brennus (Kelway).—This appears to be a robust and valuable variety, the spike being stout and the flowers large, and of a vivid scarlet.

G. Titus (Kelway).—Spike, strong; flowers, faint lilac, flaked with bright carmine.

G. Agrius (Kelway).—A really fine variety, having a tall stately spike, and large well-formed waxy flowers, of a clear salmon colour, flaked at the edge with vermilion, and a soft creamy yellow eye.

G. Mrs. Mackenzie (Douglas).—A fine variety, having a good even spike of rich rosy-lilac flowers, each segment having a central band of white; one of the most distinct of all new kinds.

G. Pactole (Dombrain).—A stately variety, having a stout spike of straw-coloured flowers, spotted in the throat with carmine.

Dahlia Mr. Quennell (Rawlings).—A good stout well-formed flower; colour, a bright orange suffused and tipped with bright red.

D. John Bennett (Rawlings).—A large well-formed bloom of deep rich crimson colour, inclining to scarlet.

D. Henry Glasscock (Keynes).—A smooth-petalled finely-shaped flower, of a deep velvety maroon colour.

Roses.—These came from Messrs. Paul & Sons, of Cheshunt, and also from Mr. G. Prince, of Oxford, the blooms in both collections being, in all respects, excellent, considering the season. In Messrs. Paul's group were good blooms of Camille Bernardin, crimson; Abel Grand, rose; Sénateur Vaisse, rosy-crimson; Sophie Coquerelle, blush; Alba rosea, creamy-white; Duke of Edinburgh, crimson-scarlet; Duke of Connaught, crimson; Antoine Ducher, a full globular rose-coloured flower; Baroness Rothschild, peach colour; Madame Eugénie Verdier, crimson; Paul Néron, rosy-lilac; Leopold Hausburg, rosy-crimson; Madame Hippolyte Jamain, white, flushed with rosy-lilac; and the deep rosy Leopold I. Mr. Keynes had among others the following, viz., Marie Baumann, rosy-crimson; Centifolia rosea; Camille Bernardin, crimson-purple; Paul Néron, rosy-lilac; Alfred Colomb, crimson; and others. Mr. Charles Turner staged a dozen good trusses of the bright rosy Rev. J. B. M. Camm, which lacks size, but, in form and colour, and exquisite fragrance, it is all that can be desired. In colour, indeed, it is quite distinct. Messrs. Paul & Son also had half-a-dozen stands of Roses, in admirable condition, not for competition, and among these were really excellent blooms of the following:—Comtesse d'Oxford, bright crimson, flushed with purple on the older flowers; Belle Lyonnaise, a yellow or buff-tinted Tea variety, in the way of Gloire de Dijon, but distinct in colour; Princess Beatrice, a full globular rosy-lilac variety, with a distinct satin-like gloss on the petals; Fisher Holmes, one of the most vivid of velvety-crimson varieties; La France, always welcome on account of its exquisite perfume; and Niphetos, one of the most distinct of all Tea-scented varieties; Antoine Ducher, fresh and beautiful; as were also Maréchal Niel, Black Prince, Captain Christy, and Alfred Colomb. One of the most distinct Roses staged, so far as colour is concerned, was the Duchess of Orleans, a large variety, of a very pleasing shade of lilac-rose. Senateur Vaisse was represented by one or two excellent blooms, and Charles Lefèbvre, which is of a still more glowing crimson-scarlet, was likewise conspicuous, as were also Souvenir d'un Ami and alba rosea.

Dahlias.—These were represented by excellent stands from Mr. J. Keynes, Mr. J. Walker, Thame, and other exhibitors. Among the best flowers staged were Grand Sultan, crimson; Thos. Goodman, a nearly black velvety-crimson; Prince Arthur, canary or golden-yellow; W. P. Layard, lilac-purple; J. Cocker, deep crimson-purple; Hugh Miller, a good bright red flower, tipped with buff; Queen of York, white, tipped with lilac; Herbert, bright carmine-purple; and Vice-President, buff, streaked and suffused with red. In the amateur class, Mr. G. H. Fewkes, Tyburn, Erdington, near Birmingham, had some good blooms, among which we noted Flag of Truce, a large white flower; Leah, golden-yellow, with an orange centre; Queen's Messenger, crimson-purple; Duke of Edinburgh, clear canary-yellow; Mr. Boston, lilac-purple; and John Standish, a beautifully formed bright red flower. Among other flowers staged, we noted one named Charles Backhouse, a vivid scarlet; Juno, a delicate rosy-lilac; Herbert, a curiously quilled flower, the crimson petals of which are lilac behind; Thomas White, a deep velvety crimson. The best stand of a dozen blooms, grown by amateurs, came from Mr. Glasscock, of Bishop Stortford, and contained some good flowers, including Royal Queen, lilac, tipped with crimson; Cremorne, a bright red, flushed with yellow; Mrs. Harris, white, tipped with lilac; James Service, a compact and symmetrical velvety-crimson flower; Vice-President, John Standish, and Willie Eckford were also well represented.

Hollyhocks and Gladioli.—Hollyhocks, as has been stated, were but poorly represented. Mr. Chater had spikes of Mr. Chater, yellow, round, and full; Perfection, a large, full, rosy-salmon flower; Fire King, crimson; Purity, soft rosy-salmon; Leah, yellow; Midnight, a deep bronzy mulberry-purple; Exhibitor, pale yellow; Rose Supreme, a fine full-flowered variety, of a clear bright rose colour; Alba Superba, a good clear white. Among the cut blooms we noted Marion, a clear bright rose; Primrose Gem, sulphur; Lilac Gem, lilac; Peri, creamy-white; Alfred Chater, bright rose; Victor, clear red. Gladioli were, on the whole, well represented, the spikes in many cases being excellent, and the colours bright and distinct. Messrs. Kelway & Sons, of Langport; Mr. J. Douglas, of Loxford Hall, Ilford, and the Rev. H. H. Dombrain were the principal exhibitors.

French, German, and Quilled Asters were well represented, the flowers being good in form and of all shades of colour between white and purple. Zinnia elegans and Marigolds were also shown, and the display of cut flowers was agreeably diversified by the addition of Dracænas, Palms, and other decorative plants from the Company's gardens. For a full list of prizes, exhibitors, and awards, see p. xiii. of our advertising columns.

Influence of Gardens.—The "Telegraph," in an article on "Cottage Garden and City Flower Shows," says:—"There can surely be no doubt of the humanising influence of flowers and the elevating moral which he that runs may read written on the florid page of Nature. Owing to many causes, among which an unpropitious climate and an eager struggle for existence and for wealth may be counted the chief, there are in this country a very large number of people whose sole notion of pleasure consists in gross sensual indulgence. They labour hard, they drink hard, and between manual toil and the satisfaction of appetite their lives are spent. We do not say that gardeners never take more than is good for them, or that such conversation with 'the fruited gems' of summer will make a man a water-drinker. What we do contend is this, that a very large amount of existing vice and consequent crime and misery spring from the fact that a great number of people out of working hours have nothing to do, and turn to vice as a relief from *ennui*. Now gardening, if a man have a few yards of ground round his place, and be not too ambitious in the selection of plants, costs practically nothing except the labour; and that, after a short time, becomes in itself a positive pleasure. It is one that leaves no bitterness; but, on the contrary, is based on a systematic appreciation of what is simple, natural, beautiful, and pure. It diverts the mind from the base worship of material utility to the contemplation of forms whose perfection needs no moral, and whose beauty is its own excuse."

Sparaxis pulcherrima.—Why is this beautiful Lilywort not oftener grown than it is? A bed of it here increases annually in beauty. It is perfectly hardy, having stood the late trying winter without protection of any sort. I shall be happy to send seeds to anyone desiring them; they germinate very readily.—Salmoniceps.

Yucca gloriosa in Flower in Ayrshire.—Two plants of this Yucca are now in flower in Mr. Scott's gardens at Hawkhill, Largs, one of which is 14 feet 3 inches in height, and has over 1,300 flowers on it. This plant is more than thirty years old, and has never flowered before.—John Porter, *Hawkhill, Largs.*

Collecting Alpine Flowers.—In reply to "Salmoniceps" (see p. 150), allow me to say that there is a book which I saw at the Hotel Jungfrau, on the Eggischhorn, which gives a complete list of all the species and varieties of plants found in Switzerland, and the several districts where each plant is found. I forget the author's name and title of the book, but the landlord of the above-named hotel could give them.—G. W. B.

Begonias for Rock-work.—The following tuberous-rooted kinds are now flowering freely on the rock-work at Kew, and are well worth culture elsewhere in sheltered positions, viz., B. Sedeni; B. Vesuvius, a large vivid scarlet variety; B. Chelsoni, rosy scarlet, and a free-blooming kind; B. Dr. Masters, vivid crimson; B. cornelia, salmon; and B. Ensign, crimson-scarlet. Of these some have stood outside all winter on Messrs. Veitch's rockery at Chelsea, where they are also blooming freely.—B.

Double Sneezewort (Ptarmica vulgaris fl. pl.).—I can fully endorse the remarks made by "N. H. P." on this plant (p. 144); but he omits to state that it is a sad rambler—if its wilful habits are not checked it will soon overpower its neighbours. I have it plunged in pots in the ground, and so keep it within bounds. I treat plants of the same propensities, such as Tanacetum vulgare crispum, Artemisia gracilis (glacialis?—a pretty Southernwood), and the three Japanese Anemones, in the same way.—G. F., *North Tyne.*

Lilium longiflorum in Scotland.—I planted bulbs of this Lily in a mixed border, about the middle of last March, and on the 12th of the present month they produced their first flowers, all of which are now beautifully expanded, each measuring fully 6 inches long. They are trumpet-shaped, very pure white, and are deliciously fragrant. This, I think, is a wonderful production; and, when it can grow here to such perfection, it may, I think, with safety be grown in any garden in Scotland.—W. Laurie, *Alva.*

Lapageria Cuttings in Water.—A Scotch lady tells me that she strikes the Lapageria freely in bottles of water, placed in a sunny window, after the old household manner of growing Myrtles. In this way there can be no doubt of obtaining the varieties true to colour. I have myself struck cuttings of Lapageria in pits in sandy compost; but, unfortunately, the plants fell victims to their greatest enemy, the slug, about two years after they were planted.—J. T. P., *Nenagh.*

Acanthuses in Devonshire.—I have grown three sorts here for many years. When I left Bitton, in 1850, there were large patches of A. mollis, spinosus, and spinosissimus. I transplanted them to this place, where they literally run wild, and, like Horseradish, are difficult to keep in order. They flower profusely. A. mollis was given to me by a friend, who brought it from the Villa Borghese, at Rome. It is the leaves of this species which are said to have suggested to the Corinthian artist the elegant foliage of the Corinthian Capital (see a plate in Evelyn's "Parallels of Architecture," third edition, 1723, p. 65). As for A. latifolius it barely exists here; it will not flourish at all.—H. T. Ellacombe, *Clyst St. George, Topsham.*

No. 198.] SATURDAY, SEPT. 4, 1875. [Vol. VIII.

> "This is an art
> Which does mend nature: change it rather: but
> THE ART ITSELF IS NATURE."—*Shakespeare.*

FRENCH FRUIT GARDENS IN KENT.

WHEN the public was interested in garden fruit culture some years ago, through the discussion which took place in "The Times" and in other journals, some made an attempt to practically test the questions raised at the time. Thus a fair trial was given in many gardens to the Paradise stock, to the open system of Asparagus planting, and to the mode of preserving Grapes; and, in most cases, with a satisfactory result. Trials, however, were made slowly, and with difficulty, from the fact that few cultivators had the opportunity of seeing the modes of culture recommended carried out. And when they were attempted, it was frequently with only very imperfect knowledge of the subject. The results were, in consequence, uncertain, or unsatisfactory. We had little hope of any fair trial of certain of the most important subjects being fairly made for a long time to come; but, thanks to the spirited and very judicious plantations made by Mr. Leigh, of Barham Court, we have now in Kent a fruit garden made after the best Continental system, and of the highest interest to growers of hardy fruit everywhere. Not content with trying modes of training more in fashion abroad than with us, or plantations of approved kinds of fruit on the cordon system, Mr. Leigh has formed several new fruit gardens; and these are so planted as to be replete with novel interest at every step. There is a very large number of trees planted, and several acres of ground devoted to fruit culture, all the walls being white as in a neatly ordered French fruit garden. This is found to afford a greater degree of heat than a surface of any other colour, and very well the fresh green foliage of the trees looks on it. The first plantations were only made in 1872, yet some of these white walls are already covered, nearly to the top, with bearing fruit trees; particularly noticeable is a wall covered with the finer kinds of winter Pears, trained as single oblique cordons, and bearing very fine fruit. This form is well suited for covering high walls very rapidly, and for the production of the finest winter Pears, such as Doyenné d'Hiver. Those having high south, or, still better, high east walls, could hardly do better than plant them thus with this fine fruit, so seldom seen in perfection in our gardens. The worthless specimens usually grown give no idea of the quality of this unsurpassed winter Pear, which, throughout Europe, is rarely worth eating except under careful wall culture. Equally numerous at Barham Court are the erect-trained five or seven-branched trees, which quickly run to the top of the walls, and are very easily managed. They are a marked improvement on the old horizontally-trained Pear tree, which took so long to form; Plums, Pears, Peaches, and Apricots are thus trained here, and, so far, they promise a very good result. It will, doubtless, seem odd to many to see the Peach and Apricot trained in any perfectly regular form. There being several walled gardens facing pleasantly to the sun, on a gentle slope, there is plenty of wall space, some of which is of whitened felt, as in the Paris municipal garden, in the Bois de Vinçennes. This, however, is not a desirable material to use, brick or concrete walls being far preferable; most of these walls are neatly wired. Throughout each garden run lines of light and neat but strong trellis-work for Pears—a great improvement on the "fixings" for the old espalier. The espaliers here are, in many cases, 10 feet high. Trees with erect branches soon cover these to the top, and the effect is better than that of the old-fashioned espalier, while the great height prevents the need of repressing the trees over much. The amount of galvanised wire used in the garden is very great, but the expense will be justified by the security afforded to heavy fruit during autumnal gales. Much destruction to the finest fruit arises in that way. Probably in no garden in England have so many of the little horizontal cordons been tried as here. They do admirably, and, though many of them were only planted last autumn, the lines are now dotted with large fruit, some of which is the finest of its kind we have seen. Here are the first Ribstons we have ever seen trained in this manner, and the fruit is much larger than that grown in the ordinary way. The Ribston is one of the fruits which would well repay for culture in this way. Popular and excellent in quality, as it is, everybody would admire extra fine samples of it, and in our markets they would fetch a very high price. It is, of course, needless to grow kinds of fruit in this way that may be had as good as we require them by more simple modes of culture. The little cordons are nearly all grafted on the true Paradise stock. Rivers' Nonesuch is also found to be good on the dry bottom, but grows stronger than the true Paradise. Where any other stock is used the growth is too rampant for this mode of training. The Lady Apple bears well here, and ripens satisfactorily on cordon trees; so does the White Calville. A mode of training these and other tender Apples on very low wooden walls formed of one or two boards is remarkable; it is recommended by Mr. Leigh to his cottagers as a substitute for walls. The quantity of fruit already borne by the young trees is surprising. A few years must elapse before the garden may be fairly judged of by those who have not seen the modes of culture adopted at their best. Henceforward, however, the fruit garden at Barham Court will be one of the most interesting and instructive that exist. Horticulture is deeply indebted to Mr. Leigh for thus testing, in a thoroughly practical, intelligent way, questions of much importance. His gardener, Mr. Haycock, also takes the greatest interest in the matter, and has managed the garden most successfully since its commencement. There are many other subjects of interest in the gardens at Barham Court not here touched upon, but we name in passing a very extensive plantation of Asparagus on the open French plan, which is succeeding admirably. It is a system which is sure to be generally adopted, and that at no distant day.

Climbing Tropæolums.—Few plants are more useful than the climbing Tropæolum Lobbianum. It is an excellent plant for clothing unsightly spots or for providing temporary shelter during the summer time. It may be readily raised from seeds sown about the middle of April where the plants are required, and all the after-culture needed is merely guiding (it can hardly be called training) the leading shoots in the direction in which it is wished they should grow, the rest being left to Nature. One of the most pleasing uses to which this Tropæolum can be put is to sow the seed here and there amongst shrubs in the back part of a border. As the plants grow they attach themselves to the bushes, and climbing over or through them, throw out in all directions wreaths of lovely blossoms which last in beauty until cut down by frost. When that takes place the haulm should be pulled up, and removed, and thus any unsightliness is speedily obviated. Temporary floral fences may also be made with this plant with good effect. All that is required is a row of pea-stakes for the support of the shoots, and it may also be made to assume a pyramidal form by allowing it to overrun the dead tops of young Fir trees, which it will do most effectually, provided they are not too large. In short, there is no end to the uses to which these climbing Tropæolums may be put. The colours to be found among them are chiefly yellow, scarlet, and crimson, and of named kinds there are no finer forms than those known in seed shops as Coronet, a large yellow sort; Perfection, rich crimson-scarlet; and Octoroon, deep mulberry. These are all great improvements on the old Nasturtium, and those who have greenhouses will find the scarlet kind useful for winter decoration in pots.—A. D.

Liatris or Button Snake-root.—The different species of this Composite plant—so unlike the rest of the order to which it belongs—are particularly attractive at this season. The rich crimson-purple spikes at a distance have the effect of a terrestrial Orchid. Spicata and squarrosa are as good as any, and take care of themselves; at the same time they do not spread too rapidly, but remain in the form of compact plants, which is no mean merit in the herbaceous border.—SALMONICEPS.

Perdrigon Violet Hatif Plum.—We find this Plum in every way excellent; it is a vigorous grower, and an abundant and regular bearer. During these last eight years, it has always produced good average crops, although Plums planted alongside of it have sometimes all but failed. Its fruit is large, roundish-oval, rich, and juicy. Its skin is purple, and the flesh separates freely from the stone. This, and Rivers's Early Prolific, should be in every collection however small.—A. HENDERSON, *Thoresby, Notts.*

Second Crop from Laxton's Unique Pea.—I sowed seed of this early dwarf Pea on a south border early in March, and harvested the produce early enough to sow some of the new seed again, in the open ground, on July 6th. The young plants were above the soil on the 15th, and now (August 25th) there are large pods that will be certainly ready to gather in ten days. I am now sorry that I did not re-sow all my seed, as I certainly could have harvested the second crop in good condition. If Unique were sown now in large pots, I have no doubt but that a crop might be got from it under glass at Christmas; certainly, it is a fine dwarf Pea for spring culture.—A. D.

NOTES OF THE WEEK.

—— To most people Strawberries are now as much things of the past as Asparagus; but this is not the case with those who grow the perpetual bearing Quatre Saisons Strawberry of the French gardens. This bears throughout the whole summer and autumn, and has a better flavour than most of the best early summer fruit. It is worthy of general culture in our gardens. It is extensively grown in the gardens at Barham Court, where, one morning last month, as many as sixty quarts were gathered for ice-making.

—— Mr Harry Veitch, who has recently visited Drumlanrig, informs us that the long famous gardens there now possess remarkable interest from the many improvements effected by Mr. Thomson, the beauty and extent of the flower-gardening, and the superb examples of cultivation to be seen in fruit-growing, and, indeed, in all other departments.

—— A fine tree of Sophora japonica is now in full flower in Messrs. Osborn's nursery at Fulham. It has been in this state during the past week or ten days, and is strikingly attractive, especially when the sun shines upon it.

—— A fine dish of Rivers's Pine-apple Nectarine was exhibited by Mr. Douglas at the Royal Horticultural Society's meeting on Wednesday last. It is a handsome fruit, of a rich amber colour, splashed with deep red. In point of flavour, it is all that can be desired—brisk, juicy, and sweet.

—— We have tried the Snowflake Potato, and can fully endorse the favourable accounts of its qualities which have reached us from all parts of the country, the tubers being not only large in size, but mealy, and unrivalled in flavour. Its shape is not unlike that of the Lapstone; and its flesh, as its name indicates, is, when well cooked, very white. Considering its fertility, as well as quality, it is likely to prove the best of Potatoes.

—— At South Kensington, on Wednesday last, Mr. Voice, of Horley, exhibited specimens of Telegraph Cucumber, which had been kept fresh for a fortnight after having been cut, by having their stalks inserted in Potato tubers. Water would, of course, preserve them equally well, by furnishing the requisite moisture to compensate for evaporation; but, where it is necessary to pack Cucumbers for travelling, Mr. Voice's plan has the advantage, and its adoption might be extended to cut flowers, as well as Cucumbers.

—— Nelumbium speciosum, an aquatic plant which in England is treated as an exotic, is, in the climate of Lyons, grown out of doors, and forms a magnificent ornament where water is available in parks or gardens. Near the Parc de la Tête d'Or, at Lyons, there is a small brook literally filled with these plants, which annually throw up thousands of superb rose-coloured flowers, often measuring more than 12 inches in diameter, and emitting a sweet odour. These plants stood the winters of 1870 and 1871, when, even in the south of France, the frosts were severe. Doubtless, the magnificent development which the Nelumbium attains in a warm climate cannot be expected too far north, but its hardiness in temperate latitudes is now an ascertained fact. The plant came originally from Egypt and Southern Asia, the name being the same as that used in India, where it is called by the natives Nelumbo.

—— At the annual general meeting of the Lawson Seed and Nursery Company, which took place the other day in their offices in Edinburgh, the report of the directors showed that the accounts for the year ending May 31, 1875, closed with a surplus of £4,179, of which they recommended £3,000 be transferred to the reserve fund, and the balance of £1,179 be carried forward to the profit and loss account. The directors expressed their regret that the results of the London branch had been disappointing, but proposed to make such changes as would effect a large saving in the expenses of the London staff. The sales of seeds and nursery produce last year amounted to £120,665, as against £89,556 in the previous year. The report was unanimously approved of, and the recommendation adopted. The retiring directors and the auditors were re-appointed.

—— A special meeting of the members of the Manchester Botanical and Horticultural Society was held the other day, in the gardens at Old Trafford, to learn the financial results of the summer season. The receipts for new shares and transfers amounted to £101, as against £2 1s. for 1874. The general receipts from proprietors and subscribers in 1874 were £1,719 18s.; this year the sum was £1,756. On the other hand, the shows of the present year were stated to have brought in less revenue than in 1874, and in some cases were, financially speaking, failures. The great show at Whitsuntide yielded a profit of £410, as compared with £500 in 1874. The Whitsuntide show was followed by an exhibition of Rhododendrons, when the receipts were £139, against an expenditure of £236, whilst the receipts of the Rose show in July again fell short of the outlay by nearly £100. Within the last fifteen years the debt of the society has been reduced from £10,000 to £6,300, and the property is stated to be worth at least £16,000. Mr. Findlay, the curator, in a short history which he gave of the gardens, stated that between £30,000 and £40,000 had been distributed by the society, in the shape of prizes, since their establishment.

—— M. E. Morren, of Liége, has just published a very full and interesting memoir of Clusius, the celebrated botanist. It is issued by the author at Liége.

—— Mr. Turner, of Dublin, the builder of the great Palm-house at Kew, the houses at Glasnevin and in many other gardens, is about to erect another wing to the great conservatory in the Botanic Gardens, Regent's Park, to correspond with the one put up by him in 1871.

—— At a meeting of horticulturists, held the other day in St. James's Hall, for the purposes of considering the advisability of holding an International Horticultural Exhibition in 1877, a Committee, consisting of Messrs. Turner, Young, Paul, and Rollisson, was appointed to draw up, and obtain signatures to, a memorial to the Council of the Royal Horticultural Society, requesting them to take steps for ascertaining what the feeling of horticulturists throughout the country was in the matter.

—— At the meeting of the Royal Horticultural Society held on Wednesday last, Mr. Richard Dean exhibited well-developed cobs of Cobbett's Improved Early Maize or Indian-corn, from seeds sown on the 15th of April. We have on several occasions alluded to the use of Maize in a green state in America, and in the Channel Islands, and the specimens in question, which were nearly ripe, prove that this addition to our ordinary vegetables might be obtained in good condition at least in the south of England.

—— A more than ordinarily successful horticultural exhibition has been held at Dundee, a town which, since the year 1867, has been somewhat celebrated for the excellence of its flower shows. Fourteen thousand visitors entered the gates, at which £550 were taken. There were 1,640 entries in all—for pot plants, 245; cut flowers, 458; fruit, 450; Vegetables, 484; dessert tables, 3. At the close of the show, last Saturday, it was intimated that the Dundee Horticultural Society would offer £1,000 in prizes, for the International Exhibition, to be held in their town next year.

—— From the September number of the "Gardener," we learn that the International Fruit Show to be held in Edinburgh on the 15th and 16th of the present month is likely to be the finest exhibition of the kind that has yet taken place. Last year, as most of our readers will remember Mr. Hunter exhibited a cluster of Grapes (Black Hamburgh), weighing 21 lbs. 12 ozs. and it is not a little surprising and interesting to hear that the heaviest bunch ever grown is likely to be exhibited at the forthcoming show.

—— The Potato disease varies greatly in different localities. In strong heavy lands the crop is, in some instances, almost annihilated. In gardens where the soil has been fully manured, the better half of the crop is in some places rotten, whilst on light ground the crops are sound, and the tubers large in size. On all soils the crops are heavy, and, therefore, no scarcity of Potatoes need, we imagine, be apprehended, especially as, in the north of England, as well as in Scotland and Ireland, they are, for the most part, unaffected.

—— It is stated that a new Vine disease is creating some alarm in Rheinthal, Frickthal, and Thurgau. Vines which are apparently flourishing in the morning wither in the course of the day, without, however, turning yellow, and in a short time die. Sometimes this happens with single Vines in the middle of a Vineyard; at other times with groups of Vines. For three years the disease has been extending, and all the Vines planted in the room of those which have died off are attacked. The symptoms bear no resemblance to those of Phylloxera, but point to root-fungus as the probable cause of the disaster.

—— In consequence of the unusual abundance of fruit, prices in Covent Garden are remarkably low, many tons of Plums having been sold for 1s. 3d. or 1s. 6d. per bushel wholesale. Excellent Apples, such as the Hawthornden, may now be had as low as 2s. a bushel. It is to be hoped that, with such prices, the public will for once be able to obtain a good supply. So imperfect, however, are the means of communication between the grower and the masses of the people that frequently when fruit is very cheap, it brings so low a price to the grower that it is to him scarcely worth gathering. Indeed we have known quantities of good fruit to rot, or to be thrown to the pigs, simply because it would not pay the grower to gather it. At the same time, any quantity of fruit could be disposed of at low but remunerative prices in our large towns. There is much to be done before our means of supplying fruit and vegetables meet the wants of the grower, or the great body of consumers.

BATTERSEA PARK GARDENS IN 1875.

Flower-gardening, according to the style that happens at the present time to be fashionable, is remarkably well carried out here, flowering plants, carpet-bedding, and sub-tropical gardening being alike the best of their kind, and in some of the beds we have the three systems combined, with very good results. No one of our other public gardens will ever be able to compete with Battersea in sub-tropical gardening for some time to come, since they all lack, more or less, that one great essential wherever tall, large-leaved, or tender tropical plants, are plunged outside, viz.—shelter from high winds, without which success is impossible. Again, there is such a preponderance of evergreen and deciduous trees and shrubs here, and such deliciously cool green turf and charming peeps across the ornamental water, that a much larger proportion of bright and glowing colour can be used than in cases where the beds are arranged, in large designs, on the more exposed lawn. The wealth of stately sub-tropical plants also relieves the eye very much, and an additional advantage is obtained by placing the masses of decided colour or carpet beds on strips of turf backed by dense green trees and shrubs, and at considerable distances apart. Added to all this, there is a much larger variety of tree beauty, a larger and better water garden, and a more diversified surface than is to be found in any other of our public gardens in the same space. At Battersea, thanks to those who planned and laid out the place, we get a great variety of garden beauty collected together in a comparatively small space, and are consequently much better able to admire it here than elsewhere; and this, as we take it, is the reason why Battersea pleases us better in its floral display than the other London parks, altogether apart from any question of management. On entering, we noticed a fine bed of Cannas to the left, backed by Acers, Pavia macrostachya, Berberis, and other trees and shrubs. The centre of this bed was occupied by C. Rendatleri, a strong-growing variety 3 or 4 feet high, having dark green purple-veined and margined foliage, and producing numerous stems crowned at the apex with brilliant orange flowers. Next came a belt of the pale green, dwarf-growing C. Sellowii. This last has narrow foliage and red flowers. This bed was edged with scarlet Pelargoniums and the variegated Gazania splendens. To the right a mass of jutting sandstone rock is effectively draped with an elegant-habited, cut-leaved Grape Vine, and flanked on either side by masses of Yucca gloriosa; and a little farther to the right on the sloping turf, backed by trees and shrubs, is a good mixed bed of Acacias, Abutilons, Sonchus laciniatus, and Senecio Ghiesbreghtii, a bold-habited species, 4 to 6 feet high, with oval, coarsely-serrated deep green leaves, downy beneath, and with purple foot-stalks. The young stems of this plant are warted much like the leaves of Gasteria verrucosa. In the same bed a large-leaved Malva, and the soft velvety-leaved Cineraria platanifolia are conspicuous. Further on towards the rockery we come to a large belt of mixed Cannas, both purple and glaucous-leaved, and some of these have made a most luxuriant growth, being fully 8 feet in height. A comparatively dwarf edging of the glaucous-leaved Funkia Sieboldii suits this mass of foliage admirably. The water margin to the left is fringed judiciously with Willow-herbs, tall Grasses, Carex, and Typha, which add greatly to the effect of this portion of the park. Although the water margins here are not by any means strikingly good examples of the landscape gardener's art, still they are the best we have in any of our London parks. Why cannot the ornamental water in Victoria Park and portions of the Serpentine, in Hyde Park, be fringed with aquatic and sub-aquatic plants?

Polymnia grandis.

The Rockery.

From the belt of Cannas, just described, a charming view is obtained of the rockery, which is at present very beautiful, the jutting crags being hidden, from a spectator standing at the point above indicated, by masses of narrow-leaved dwarf-habited Berberis and bright green wreaths of Bignonia grandiflora, one of the best of all plants for such positions, although rarely seen except nailed to a wall. This drapery forms a good background for rich purple and white-flowered Clematises, which are now blooming freely, hanging in natural wreaths and tangled masses, while the slopes at the base of this arrangement are very tastefully planted with Sedums, mossy Saxifrages, Echeverias, Sempervivums, and other Succulents, varied here and there by plants of larger growth, and backed by banks of Cotoneaster, on which some clumps of Yuccas and Bamboos stand out very effectively. The lower portions of the jutting crags are draped with large-leaved variegated Ivy, while the upper portion, and the sloping bank above, are completely carpeted with the large-leaved Vinca major variegata, among which, and on some of the rocks, tufts of the strong-growing, rosy-flowered Sedum spectabile are dotted with good effect. On the sloping sheltered bank beyond the rockery, we come to a charming bed of the distinct golden-foliaged Catalpa syringæfolia aurea, backed by a row of the yellow-leaved Elder, which, in its turn is backed by irregular masses of rich purple and blue-flowered Clematises, mixed with a mass of the elegant Eccremocarpus scaber in the centre. This is an old plant which does well as a hardy climber as far north as the Trent, and it is difficult to imagine any plant more effective than it is for grouping on wall trellises, or, as here, on a rude fence, where its bright orange-scarlet racemes of flowers derive additional brilliance by being contrasted with the rich purplish-blue Clematis. For a rustic porch it is unequalled.

Shrubbery Borders.

A shady shrubbery border, situated here and planted with dwarf and standard variegated Negundos and Tree Carnations, on a carpet of blue and yellow Violas, is very effective, backed as it is by Hollies, and other dark-leaved shrubs. This bed is neatly margined with a double row of Pelargonium Gem of Brilliants, a golden-leaved cerise-flowered, dwarf-growing variety, the whole being finished off with a line of the slender-growing silvery Leucophyta Brownii, a neat little plant, well adapted for edgings or narrow lines between dark crimson Iresines or carmine-tinted Alternantheras. Some isolated specimens of Musa Ensete, Dracæna indivisa, dwarf Fan Palms, and other plants of stately habit, are used with excellent effect in the sheltered bays which occur here and there in the shrubbery borders. From those walks that border the ornamental water some charming glimpses of the Rush, Willow weed, and Iris-fringed water margins are obtained. The silvery-leaved Poplar (Populus canescens), which overhangs the lake here, is particularly attractive in windy weather, the undersides of the leaves shining like burnished silver, and this peculiar effect is considerably heightened when the trees are backed by Cedars or other dark-leaved Conifers. This tree readily produces suckers, and these, when only a few feet in height, are very attractive planted amongst dark-leaved shrubs. A long narrow bed of dark-leaved Cannas and clumps of Sempervivum cuneatum, and the Mealy-leaved Echeveria (Cotyledon) pulverulenta, margined with golden variegated Euonymus, looked well and distinct. This last-named plant (Euonymus japonicus aureus variegatus) is very bright and striking as an edging plant or for forming a low hedge in front of shrubbery borders. Rose of Castille and other Fuchsias are here used with charming effect in long beds or borders, along with scarlet zonal Pelargoniums, yellow Calceolarias, edged with Euonymus aureus variegatus, a dense-growing bright green-leaved plant, the leaves suffused, blotched, or margined with golden-green. Another variety, which is brighter, although scarcely more pleasing, is E. latifolius albus marginatus, which, pegged down, forms a very distinct edging plant, its leaves being glossy green with clear ivory-white margins. A large oval bed is here planted with the spiny Aralia japonica on a carpet of Calceolarias, and is surrounded by scarlet zonal Pelargoniums, Fuchsia gracilis variegata, a neat-growing variety with creamy-white margins, and the slender-habited, lilac-eyed Nierembergia gracilis. At each end of this oval are two semi-oblong beds planted with Christine Pelargonium, then a double row of a white-edged variety resembling Queen of Queens, then a line of Lobelia pumila grandiflora, succeeded by a neat edging of Mesembryanthemum. Behind these three beds is a long border of purple-leaved tall-growing Cannas, margined in front with lines of a white variegated Pelargonium and the yellow or golden-leaved P. Robert Fish. A patch of the common Marigold (Calendula officinalis) has established itself on the sandy margin of the ornamental water, and its bright orange colour is very effective in the distance. Another shrubbery border is rendered very effective by being margined by a broad border of variegated Ivy, long panels being left at intervals among the shrubs for foliage and flowering plants. In these spaces Cannas, variegated Acer Negundo, and other plants, are seen to great advantage, being backed and sheltered by dark-leaved evergreen shrubs and deciduous trees. It is to be regretted that Ivy edgings are not more frequently used, when we see such excellent effects produced by them, both here and elsewhere. On one of the sloping rocky banks we noticed several good clumps of Yucca flaccida blooming freely, some of the clumps producing three or four spikes each. This is the freest flowering of all the Yuccas; it is also one of the quickest growers, and so easily propagated by division that we wonder it is not more generally grown for bedding purposes, or for isolated clumps on the lawn near shrubbery margins. Here, backed by dark-leaved Cotoneasters, Laurustinuses, and Conifers, its ivory-white flowers shine with much brilliancy. The waterfall and large rockery are now very effective, the rocks being fringed and partly hidden in a very artistic manner by Brambles, small-leaved Cotoneasters, Jasmine, and other rambling shrubs, and the waterfall itself is margined with glaucous Sedges; Osmunda regalis, one of the best of all plants for spongy water margins; rose-flowered Willow Herb and Cyperus laxus in pans, which last we should, by the bye, have liked better if the pans had been plunged in the turf, or otherwise concealed. Rushes, hardy Hart's-tongue, Athyrium, and other British Ferns are also used here with excellent effect, and here again Yucca flaccida rears its spires of ivory white blossoms. This portion of the rock garden is one of the best features of the place, Weeping Willows, wild Brambles and Grape Vines, Cotoneasters, Yuccas, and other hardy plants being very tastefully used in setting it off to the best advantage. Passing on to the left from the waterfall we come to a long shady border carpeted with Sedums, Ivy, Vincas, and other low-growing Succulents and hardy creepers, on which Sempervivum arboreum, S. canariense, S. cuneatum, and other strong-growing kinds are grouped, with Laestreas, Athyriums, and other hardy Ferns, Dracænas, and large-leaved Arads. Long strips in this irregularly planted border are here and there devoted to carpets of Golden Dead Nettle, (Lamium purpureum aureum), purple-leaved Bugle (Ajuga reptans var.), Sedum glaucum, Antennaria tomentosa, and other dwarf-growing plants, while great masses of Royal Fern, Yuccas, large-growing Succulents and Palms are introduced here and there with good results. Some mossy tree trunks which occur at intervals are tastefully draped with green and variegated Vincas, Hart's-tongue Ferns, fresh green Hypnum Moss, and plants of the common Hart's-tongue, Platycerium, and the silvery-leaved Vitis heterophylla variegata. The large-leaved Abyssinian Musa Ensete is growing well plunged in sheltered recesses among evergreen shrubs and trees, and the same remark applies to Aralia papyrifera, one of the finest and most distinct of all sub-tropical plants. A large circular bed planted with it is very effective, fringed with a belt of silver and bronze Zonals, and neatly edged with a row of the flat-topped Sempervivum tabulæforme.

Single Specimens.

Large specimens of Livistona borbonica, Seaforthia elegans, Dasylirion acrostichum, Araucaria excelsa, and other distinct plants show well on the green turf, and a bed of Dracænas, Fan Palms, Echeverias, and other Succulents, on a carpet of golden-leaved Zonals and Mesembryanthemum cordifolium variegatum is just now very pretty, being neatly edged with a double row of Echeveria secunda. A very effective isolated plant used here is Aralia japonica, a spiny plant, closely resembling a large Sumach in habit, its elegant bipinnate foliage waving most gracefully in the slightest breeze. It may be readily propagated, either from root or stem cuttings, and requires cutting back every year, so as to induce a strong growth. A. Sieboldii, a smooth, glossy-leaved species, is also hardy, and is a most effective plant for isolated positions, or in mixed beds of large-growing foliage plants. Here we came upon a circular bed, the centre of which was planted with Beaton's Nosegay Pelargonium and Verbena venosa mixed, this being finished off with four lines, as follows:—The first row, next the central mass, was Pelargonium Robert Foster, a tricolor variety of average merit; then came a line of Königa (Alyssum) variegata, followed by Lobelia pumila maxima, according to the label, but this name sounds rather paradoxical—the whole being neatly finished off with golden Mesembryanthemum.

The Alpine Garden.

The so-called Alpine garden, with its peaks of Antennaria tomentosa and masses or isolated specimens of large-growing Succulents on a carpet of Sedums, Saxifrages, Oxalis corniculata rubra, turfing Daisy (Pyrethrum Tchihatchewii), and other carpeting plants, is very effective. The last-named plant forms a dense deep green carpet of finely-cut foliage, and is valuable on dry sandy banks. Among the most conspicuous of the Succulents here employed we noted Echeveria metallica, Aloe plicatilis, Opuntias, arborescent Sempervivums, thick-leaved Aloes and Agaves, Cotyledons, and Crassulas, among which flowering plants of Yucca flaccida, Y. recurva, large-leaved Aralias, Palms, and Dracænas, were used with excellent effect. A mixed bed of sub-tropicals, edged with lines of a dark-zoned bronzed Pelargonium resembling Perilla, and Alyssum (Königa) variegatum, margined with a double row of Chamæpeuce Cassabonæ, is very effective, as is also a bed of dark-foliaged Castor Oil plants mixed with the finely-cut glaucous-leaved Chrysanthemum frutescens, and margined with the bright silvery cut-leaved Artemisia judaica, then a row of Pelargonium Christine, the whole neatly finished off with an edging of Königa variegata, allowed to grow and flower freely. A word must be spoken in favour of Artemisia judaica, for it is one of the brightest and most distinct of all silvery-leaved foliage plants, and would be especially beautiful contrasted with Iresine Lindeni. It grows from 6 to 15 inches in height, and deserves more attention than it has yet received. A large semi-circular bed of the spiny Aralia japonica, edged with a belt of the glaucous-leaved Funkia Sieboldi, the noblest of all species in this beautiful genus, is very distinct and good. We now come to one or two sheltered niches or arcades—arborescent arcades formed of trees and shrubs—and here we get some very pleasing peeps at tropical vegetation, such as tree Ferns, pinnate and fan-leaved Palms, Bird's-nest Aspleniums, great-leaved Arads, and other plants of noble or graceful habit, their charms being here considerably augmented by the ever-varying light and shade which fall on them through the waving branches overhead. Along with the plants just mentioned are associated tall Yuccas, the cut-leaved Monstera, Platycerium grande, one of the noblest and best of all the Stag's-horn Ferns; and, lastly, the deep green narrow-leaved shady Dragon Tree from the Mauritius (D. umbraculifera). This is a most distinct and effective plant, its spiny strap-shaped leaves rising gracefully from the stem, and falling over in curves as elegant as those of a spreading fountain. Acacia lophantha, and the even more graceful Grevillea robusta are used in the shrubbery borders here with charming results. A border of yellow Calceolarias and Blue Viola, mixed, is very beautiful, backed by lines of bright scarlet Pelargoniums and tall white variegated Epilobium or Willow Herb, and this is margined in front with the silvery Cerastium tomentosum, Here we find two or three mixed beds of large sub-tropical plants in good condition. One oblong bed is planted with Sonchus laciniatus, S. Ghiesbreghtii, Solanum argenteum, the plumose-leaved Ailantus glandulosa (one of the most graceful of all hardy foliage plants in a young state), Aralias, Abutilon, Amicia zygomeris, Oleanders, Zea variegata, and the elegant Gymnothrix latifolia (one of the most distinct of all large-growing ornamental Grasses). Behind this bed are large isolated specimens of Theophrasta imperialis, Aralia trifoliata, tall Ficuses, and other plants; while Date Palms, Dracæna australis, Seaforthias, and Pandanus are judiciously used in the foreground. A large circular bed here struck us as being worth more than a passing notice. It is planted in the centre with mixed Cannas, of moderate growth, and variegated Maize; then comes a golden belt of Pelargonium Yellow Gem, followed by a belt or double row of Alternanthera paronychioides major, and then a single line of A. amœna, the whole arrangement being admirably finished by a broad band of the golden-margined Coprosma Baueriana variegata as an edging. This last-named plant is pegged down, and forms one of the best and most distinct yellow edging plants we have seen this season. The visitor to Battersea Park should not fail to notice the feathery Tamarisk, which does well here, cut back so as to form a low shrub on the borders of the ornamental water. There is also a remarkable specimen of the well-known Wistaria sinensis here which is worth notice, it being trained as a low-spreading bush, some 10 or 12 feet in height, and, so treated, it forms a noble plant for isolating on the open lawn. The specimen here referred to is just now a mass of fresh green foliage and mauve or lilac-purple flowers, while its graceful young shoots bear leaves of a delicate fawn colour. The bright green leathery-leaved Griselinia macrophylla forms an effective foliage plant here, plunged in front of some sombre-foliaged Yews, and Pavia macrostachya is very beautiful in a similar position. A large oblong bed of the large-leaved Solanum macrophyllum, yellow Calceolarias, and white-edged zonal Pelargoniums is very distinct, and is edged with a line of the blue Lobelia Brilliant, and the silvery Dactylis glomerata variegata, plant for plant. Gunnera scabra has made a strong growth in a moist hollow of the undulating lawn, where it has been planted some years, and the effect of this plant is considerably enhanced by being contrasted with rosy-flowered Epilobiums, Rushes, tall Grasses, and other native marsh or sub-aquatic plants. In a long curved bed, large glaucous-leaved Cannas, fully 10 feet in height, are very effective; they are margined with Pelargoniums, and one of the best edgings of the rich orange Gazania splendens we have yet seen, forming, as it does, a perfect belt of fiery flowers. A circular bed close to the last-named is planted with Gymnothrix latifolia in the centre, surrounded by the large palmate-leaved Aralia papyrifera, over an undergrowth of scarlet Pelargoniums, crimson Calceolarias, and Verbena venosa. Then comes a bright line of Veronica Andersoni variegata, which, when pegged down, makes a neat and effective creamy-white edging, and the whole is finished with a row of dwarf-growing Sempervivums. In a long bed Erythrinas have made a most luxuriant growth, and are well set with bloom-buds; these are margined with lines of a white-flowered Pelargonium and glaucous and green-leaved Sempervivums. A bed of large-leaved Wigandias on an undergrowth of Lantanas, edged with pink-flowered Pelargoniums, blue Lobelia, and Echeveria secunda glauca is also very effective. Masses of the stately Polygonum Sieboldii in one of the shrubbery borders are fully 8 feet high; this plant also forms noble specimens on the open lawn, especially in moist situations. A pair of narrow, sinuous, snake, or scroll beds, planted with golden and silver-edged Zonals, panelled with succulents and purple Iresines, and edged with the silvery-leaved Euonymus radicans, are very pretty. In the bay formed by the sinuous curves of these beds are masses of green-leaved Ivy; opposite these are a pair of round foliage beds, planted effectively with Coleuses in the centre, supported by a double row of Cineraria maritima compacta, a form much dwarfer and brighter than the ordinary kind. Then comes a narrow line of Alternanthera paronychioides major, and the edge is finished off with a double row of Sempervivum tabulæforme. In one or two beds the common Hemp has made luxuriant growth. A pretty pair of circular beds, planted as follows, deserve especial attention. The central mass, occupying about half the area of the beds, is planted with scarlet Zonal Captain Harrison, the silvery-leaved Artemisia judaica, mixed with a small white-flowered Viola. Then comes a circle of white variegated Pelargonium Jane, followed by a ring of the deep blue Lobelia Blue Stone, to which we have elsewhere directed attention as a rival to L. pumila magnifica, and one of the best blue bedding plants known, while, as an edging, the useful and reliable Mesembryanthemum cordifolium variegatum is judiciously employed. The next bed is equally pleasing and effective. It consists of a central block of the dwarf pink-flowered Pelargonium Mrs. Ffytche, mixed with the small white-leaved Viola, to which we have previously alluded. Then comes a ring of variegated Fuchsia, followed by others of Leucophyta Brownii, Alternanthera magnifica, a double line of Pyrethrum Golden Feather, supported by a neat edging of Echeveria secunda glauca. A distinct and strikingly effective bed is planted as follows:—Königa variegata, edged with lines of Coprosma Baueriana variegata and a double row of Echeveria secunda, the circular panels being planted with Vriesia zebrina, variegated Fuchsias and Coleuses, Tradescantia discolor, and small Araucarias, Agaves, and Thujopsis dolobrata. Saxifraga crassifolia forms a distinct and massive edging of a deep green colour, and the golden-leaved form of the common Elder is an effective plant in such combinations. A mixed bed consisted of Cosmos bipinnatus exaristatus, a branching plant, from 2 to 3 feet high, in habit like a Balsam, but having finely-cut bright green Fennel-like leaves, and rosy composite flowers, and the rich downy-leaved Abutilon braziliense, plant for plant; a few specimens of the Blue Gum (Eucalyptus) being added for colour. This bed is well finished off with a line of a golden-leaved zonal Pelargonium, and an edging of dwarf scarlet-flowered Tropæolum. A circular bed outside the sub-tropical garden is planted with a mass of the Chinese Aralia papyrifera in the centre, then a ring of the lovely pink Zonal Mrs. Turner, succeeded by a row of Queen of Queens, or Albion Cliffs, and a neat edging of a green-leaved, rosette-shaped Sempervivum. This was bright in colour and massive in foliage.

Asplenium nidus avis.

Carpet Bedding.

Under this heading we allude to the beds in which foliage plants only are used. Many of the beds hitherto described are composite, *i.e.*, half carpet and half flowering plants; just as many of the larger beds here alluded to are half filled with "sub-tropicals" and half with flowering plants. One long carpet bed is planted with curved panels of the bright orange-red Alternanthera paronychioides, on a carpet of the dense, bright green Cerastium arvense, this being outlined with narrow scroll-like bands of Golden Pyrethrum, the remaining portion of the bed being richly carpeted with Alternanthera amœna, bordered on the outside by another line of Golden Feather and an edging of the soft, close-habited, glaucous-yellow Sedum anglicum. This bed is as perfect as need be, the bright green scrolls of Cerastium adding greatly to its effect. Sedum anglicum is a first-rate edging plant where a soft yellowish-green colour is required. Another oblong carpet bed here planted in a similar manner is likewise strikingly beautiful. Between the oblong beds just alluded to are two large round ones, each having twelve smaller circles within its radius, a dwarf-growing Agave forming the centre of each, and resting on a carpet of Sedum anglicum; next comes a ring of Rochea falcata, Kleinia, Pachyphytum, Gasteria, or other distinct-growing Succulents, and rings of Cerastium arvense, Golden Feather Pyrethrum, or Alternanthera. The spaces inside these circles are carpeted with the bright red Alternanthera magnifica, and outside with dwarf blue Lobelia, the whole being neatly margined with lines of Leucophyta Brownii and Sempervivums, as, S. calcareum and the dwarf S. montanum. These beds are distinct and attractive, the stiffness and flatness which usually characterise carpet beds being entirely removed by the use of central plants of Agaves in the smaller circles. A pair of oblong beds, having a small circular one between them, in ball and socket fashion, are well planted with a carpet of bright red Alternantheras, on which Pelargonium Mrs. Pollock, thinly planted, stands out very bright and distinct, the whole being tastefully finished off with the narrow lines of Leucophyta Brownii, Alternanthera amœna, and a closely clipped edging of the golden variegated Mesembryanthemum. One of the prettiest of all the carpet beds here, however, is planted in a trefoil or gothic design on a carpet of the bright carmine Alternanthera amœna, the outlines being planted with Golden Feather. In the centre is a richly-coloured plant of Yucca filamentosa variegata, surrounded by a ring of Kleinia tomentosa on a brilliant orange-red carpet of Alternanthera paronychioides, surrounded by a narrow trefoil outline of Golden Feather, on a carpet of the silvery Leucophyta Brownii. The gothic arch-like curves, which extend to the inner marginal lines of the edging, have oval blocks of Alternanthera versicolor in the centre surrounded by a narrow golden line of Pyrethrum. The marginal lines consist of Leucophyta Brownii between two narrower lines of Golden Pyrethrum, and a broad edging of the dwarf Sempervivum montanum. F. W. B.

Pyramidal Schizanthuses.—Those who have not grown the Schizanthus in the form of pyramids from 3 to 4 feet in height, and as many across at the base, can form but little idea of its beauty when covered with its handsome little Orchid-like flowers, which last in perfection for two or three months. The last week in August or the first in September is the best time to sow seeds of it, and, when the young plants are up, pot them off, and shift them on as may be required, the last shift being into a 10 or 11-inch pot, for plants of the size mentioned. The soil should be the same as that used for all soft-wooded plants. Grow it near the glass, and give plenty of air. For pyramids, there must be a good stake in the centre, to which the side branches should be fastened from time to time. Due attention must be given to stopping, as on this the shape and beauty of the plants depend; the last stopping should take place not later than February. They flower in April, May, and June, and the best varieties for pot culture are S. pinnatus and S. retusus, more especially the former.—W. Stone, *Lismore Castle, Waterford.*

An Ornamental East Indian Bindweed (Batatas paniculatus).—This graceful and free-growing tropical climber or trailer is now flowering freely in the old Victoria-house at Kew. It has large palmate leaves, and bears axillary long-stalked clusters of soft rosy-lilac Ipomœa-like flowers. If cut back early in spring it throws out young Vine-like shoots, each as thick as the little finger, and these frequently attain a length of from 20 to 30 feet, and can be trained or festooned as desired. It forms a thick Yam-like rootstock, which may be cut into pieces, and young shoots grafted on them soon form plants.—B.

Tydæas from Cuttings.—As some plants of Tydæa Robert le Diable, a very handsome variety, which I obtained from M. Van Houtte, of Ghent, failed to make good rhizomes last year, the idea struck me of trying to increase them by means of cuttings; therefore, last spring, when the growth was sufficiently advanced, I took off the tops and placed them in a hotbed, in sandy peat and loam. They rooted quickly, and now they cannot be distinguished from the parent plants, all being at present just about to open their handsome richly-marked blossoms.—J. T. P.

ORCHIDS AT DARNCLEUGH.

Darncleugh, the residence of Mr. John Fraser, is one of the most remarkable places in the north of Scotland. It is charmingly situated on Dee Side, a few miles from Aberdeen. The natural beauties of the place—its fine undulating character, with richly-wooded slopes—at once attract the eye of the visitor; and, when to these is added, in the foreground, a well-selected assortment of ornamental trees and shrubs, luxuriating under the influence of a happy climate, he feels that he is viewing a scene, the memory of which is not likely to be soon effaced. Darncleugh gives scope to the planter to use to advantage the many beautiful Coniferous plants which are becoming abundant in all parts of the country. Aberdeenshire, and, indeed, all the northern counties, where anything like shelter can be commanded, seem to be a favourite home for this family. The Abies Douglasii, for instance, the most stately of Firs, grows far more luxuriantly than any of its fellows of long-standing repute. Here it is quite grand, bearing cones even when 20 feet high, and not suffering, like some others, in consequence. The next best trees are the Picea lasiocarpa or Lowii—a model of symmetrical form—the Californian Silver Fir (P. nobilis), and the Crimean (P. Nordmanniana). P. grandis, too, and P. magnifica are healthy, and so is the Taxodium sempervirens, which does not succeed in many localities; P. Pinsapo, although healthy enough, does not seem to thrive; it was more shrubby than tree-like, showing that selection of individuals is absolutely essential to secure something like uniform effect. Plants of Cupressus, Thujopsis, and Thuja, of all kinds, were pictures of health, as were the newer Japanese cone-bearing plants, of which there is a rich collection here, all seeming likely to stand out eventually as distinctive objects in the grounds. The Rhododendron luxuriates in the highest state of health, and, when in bloom, the great variety of choice kinds throughout the clumps must be extremely beautiful. What pleased me much was to see so fine a collection of herbaceous plants well cared for, and growing with the utmost vigour. Roses, Phloxes, and Pentstemons, the gems of border-beds and clumps were equally good, and Succulents, in their grotesqueness and formality, were well represented. Interesting, however, as are the plants mentioned, the chief value of the place is to be found in its collection of Orchids. Some are apt to suppose that these plants are rarely cultivated in the north, but I have been agreeably surprised to see so many good specimens scattered over not a few places, which I hope, as opportunity offers, to refer to in detail. Mr. Fraser has been collecting them for the last ten years, and in some respects he has been exceedingly successful in their cultivation. He appears to be ably seconded by his son, who takes a deep interest in Orchid culture; and his gardener, Mr. Roberts, too, deserves to be commended for his share in this successful work. It would be difficult to find anywhere a better collection of Cypripediums, or one that is more skilfully managed than that at Darncleugh. There is a house entirely set apart for them, and almost every species is in the highest state of culture. To enumerate all would be to name what is generally seen in catalogues. The remark was made to me, "We have not got vexillarium yet," which meant that all the sorts that are in commerce are in the Darncleugh collection. The only one that seems not to bend to the skill of the grower is C. lævigatum, which is sometimes difficult to move, and by no means a free grower at any time. What surprised me most was a splendid plant of C. javanicum, which, to my mind, is the worst to grow of the batch. Dayanum was particularly good, and Dominianum and Sedeni, the real gems of Lady's-slippers, either new or old, are marvellously fine here, and are sure to take high rank as they become better known. Veitchianum itself is about the best of the large-growing sorts, and it was in fine condition in this collection. The method of cultivation seems to be a good steady temperature, well supplied with moisture and rather close than otherwise. The potting is conducted in the usual manner. Another well-grown set of plants are the Masdevallias, of which there were large numbers. All the newer kinds were prominent, the best of them being M. Peristeria, a singular-looking flower of a dullish crimson cast, relieved with stains of yellow, more grotesque and interesting in the details of its formation than beautiful. Unquestionably the best of the group are the deep-coloured forms of M. Harryana, M. Veitchii, and the superb M. ignea. All others, new and old, must give way to these kinds. Here, however, they are in splendid condition, having strong leaves, free from blemish, and full of vigour. If anything, they appeared to be too confined for free development, but with growth well ripened they must yield fine flowers. The Odontoglossums and other cool Orchids were not so conspicuous as these, although many of them were fine plants ; but, to my thinking, they were too far from the glass, and, being under the shade of Vines, the dust and dirt accumulating did not offer the best sort of home for their cultivation. Mr. Fraser, however, has wisely decided to build a new house for them, and to give them every chance that he can. The Calanthes of all kinds, particularly Veitchiana, were in first-rate health, filling 10-inch pots, with great bulbs two and three stories high; they must be very fine when in full flower. There was a splendid variety of Oncidium tigrinum in flower, of great substance, beautiful colour, and of large size ; and there was also by far the finest individual flowers of Cattleya Leopoldii that has ever come under my observation. For size, for colour, and for substance, I believe it stands unrivalled, and I would suggest that, in future, it should be distinguished by the name of C. Leopoldii Fraserii. Another gem we do not often see was the pearly-white Aërides margaritaceum, under the name of Dawsonii. This sort first flowered in the Meadowbank collection, and from its pearly-whiteness it was named margaritaceum. It partakes a good deal of the growth of Aërides maculosum, but it is quite a distinct species, and had on it a spike quite 15 inches long, much stronger and finer than I have before seen it. It is a decided gain to the Aërides family, only there will be some difficulty in getting it true. Of Cœlogyne cristata there were great masses with fine plump pseudo bulbs, and many of the Dendrobiums, of which there was a houseful, were in good condition. The D. crassinode was beautifully grown, and almost all the species, were excellently represented in the collection. There were Phalænopsids in quantity, Schilleriana being in the best state of culture, and many other species, which it would take too long to describe. There was a well-marked plant of Vanda suavis, which I understand had borne a branched inflorescence of something over twenty flowers. As Mr. John Fraser informed me, this is quite unprecedented, and shows how wayward Orchid development often is. The species, as regards temperature and management, were well cared for, no less than four or five divisions of good houses being set apart for the family. But it is not only Orchids that this collection consists of. There is a fine assortment of Pitcher plants, Ferns, and of ornamental plants and greenhouse plants ; indeed, there is in a comparatively small space at Darncleugh, in the group of houses, a variety of subjects, which is certainly very remarkable. We observed a fine large plant of Nepenthes sanguinea, and also plants of Rafflesiana and Dominiana ; good Sarracenias, particularly purpurea, a very fine plant of the Darlingtonia californica, a species not generally cultivated hereabouts. The Gleichenias were growing excellently, a glaucous one, having the character of Mendellii, being very conspicuous. These grew along with the collection of Orchids, under the Vines, and seemed quite at home. In ornamental-leaved plants there was a remarkably fine pair of Crotons, variegatum and pictum, of most perfect colour, about 10 feet in height, and 3 feet in diameter. J. A.

Cannas and Ailantus (see p. 191).

THE INDOOR GARDEN.

FORCING ROMAN AND OTHER HYACINTHS.

For winter and spring decoration the Hyacinth, the Tulip, the Narcissus, and the Lily of the Valley, are indispensable. They are usually accommodating in their habits, as regards forcing and pot culture generally, and they are a staple article of supply for six or seven months in the year in any garden where house or conservatory decoration is an object. To have Hyacinths in flower as early as possible, say about Christmas, is a consideration, and wants a little management. For the earliest batch of all, the Roman Hyacinth, which has come greatly into repute during the last few years, is the best. In fact, the common Hyacinth cannot compete with it in this respect, for it may easily be had in full flower early in November, nearly two months sooner than it is possible to flower the other. The Roman Hyacinth is pure white, and not unlike our common wood Hyacinth in the size and form of the flower, or a large sample of Lily of the Valley, for which it is substituted sometimes for button holes. It cannot, however, compare in magnificence or general excellence with the true Hyacinth, and of course it is not recommended except for very early use. The bulbs, which are cheap enough, should be potted by the beginning of September, putting five or six bulbs into a 5-inch pot, or at that rate, as one or two spikes only, in a pot, look insignificant; therefore, pot thickly. We have not yet tried the plan, but the sparse foliage of the Roman variety, and its sometimes lanky habit when forced, has led us to think that a few leaf buds of Lily of the Valley inserted in the pot, among the bulbs, would set off the group of white flowers wonderfully. Lily of the Valley itself does not force into flower very early, but the foliage grows away readily enough in a little heat at any time, and would make suitable furnishings in the way mentioned. Leaf buds are easily procured, and after grouping the Hyacinth bulbs pretty thickly in the centre of the pot, the Lily buds could be inserted round the sides; thus the Hyacinth flowers would be encircled by a wreath of the most pleasant green that we possess among pot plants. Light loam, plenty of sand, and some rich leaf mould suits the Hyacinth, and the soil should be made tolerably firm beneath the bulb in potting. Good drainage, but with few crocks, is also essential. After potting we always plunge the pots in ashes in a perfectly cold frame or behind a wall, covering them over 6 inches deep, and using straw for further protection when it is necessary. They are not looked at till the beginning or middle of October, by which time they have generally rooted well, and grown about 2 inches. The most advanced are, at this stage, lifted, cleaned, and set on the shelf in a cool house for a week or so till the leaves acquire their green colour, shading for a few days at first with a sheet of paper if the weather is bright. After this they are introduced to the Cucumber-house, or early Vinery, keeping them near the light, and the flowers usually throw well up and expand in a short time, when they are again moved back to the cool greenhouse or conservatory, where they will last a month or six weeks. The common Hyacinth forces reluctantly before the close of the year, and the double varieties are also useless for this purpose. If a good display is desired from December to March, single ones only should be employed. As regards soil and potting, they require the same treatment as the Roman kind, but one bulb to a 5 or

6-inch pot is sufficient. The most important point is to get the roots by the end of August, if possible, or at the latest by the 1st of September, and pot them at once. Cover them with ashes, as before directed, in a glazed frame, having a southern exposure. The gentle heat communicated to the ashes by the sun excites growth, and by the middle of November the bulbs should be pretty well rooted and have grown an inch or two. They should then be introduced to the light in a cool house, with the precaution recommended above, and after they have recovered their green colour, put into heat and pushed on as fast as they will bear. Too much heat produces foliage only, without raising the flower-spike out of its socket. When this is observed, less heat must be given, and the plants should be kept near the light. When pressed for time, we have often pinched the leaves back, which has a good effect. A good flower is never secured along with very long leaves, which, in a perfectly grown Hyacinth, should be short and erect. It is hardly possible to get a good flower by forcing, if the spike is not well up before the plant is lifted from the ashes. At the same time, if too much growth—say 5 or 6 inches—is made under the ashes, the result will be equally unsatisfactory. Above all, pot early, lift in time, and force gently. With the Tulip, Narcissus, Crocus, and Snowdrop, the same rules hold good, only that they force more easily than the Hyacinth. The Tulip and Crocus, however, make but a fleeting display if forced into full flower in heat. They, therefore, should be removed to a cool and light structure as soon as the buds are visible, and allowed to open gently.

Lily of the Valley.

This does not force freely before February and March. The plan of putting the plants into a Mushroom-house or warm cellar has been recommended. By such means a proportion of the flowers can be had pretty early, but plants so treated are nude-looking subjects, and only fit for cutting from. We do not approve of the plan, except when we have an unlimited stock of plants. Our best early plants are those which have been forced the previous year, and which have been kept in the pots all the summer, and well watered and cared for. Such plants may be introduced to heat about the 1st of December, and pushed on gently till the flower-spikes are well above the foliage. Before this a high temperature will only drive the plants to leaves, and, though the buds may have been ever so good, the flowers will not afterwards appear. The most readily obtainable plants, fit for immediate forcing, are undoubtedly the imported clumps, in which a great trade has been done of late years. These are compact balls of roots, containing a good proportion of flower buds, and only need to be squeezed into pots of suitable size, with some rich soil above and below, and started at once. Lily of the Valley is, however, a plant that can scarcely ever be had in too great abundance about a place; and the best and by far the cheapest way to get plenty of stock for forcing is to plant a good large bed, composed of rich light soil, with roots, dibbling them in pretty thickly about an inch below the surface, and taking care to keep the plants free from weeds during the summer, and to water them now and then with liquid manure. Such a bed soon forms a mass, from which quantities of flowering buds, that can be distinguished by their superior thickness and plumpness from leaf buds, may be selected and potted every autumn. The buds should be lifted out with a quantity of root to each, and one by one packed in the pot, closely together, using a good soil. Those large profusely-flowered specimens, which we see sometimes at shows, are produced in this way. The roots from which the buds have been selected should be re-planted in rich soil, and in this way the succession is kept up.

J. S. W.

SCORCHING IN GLASS HOUSES.

The scorching of the foliage of hothouse plants is a very common occurrence, being the cause of no little trouble to the inexperienced cultivator, especially of the Vine and other fruits, and not unfrequently producing most disastrous results. Only the other day we heard of a house of Vines being denuded of foliage in this way—ending, of course, with the loss of the crop; for it is hardly necessary to state that without leaves the fruit cannot be matured, nor the wood either, and the loss of two crops is the probable result. Scorching is generally the consequence of excessive drought acting upon the surface of the leaves, and robbing them of their moisture faster than the supply can be pumped up by the roots; but the sensitiveness of the leaves in this respect may be much increased by previous treatment, and, though scorching will occur under the best management, timely attention to a few simple rules would nearly always prevent it. It may happen at any time during the day or night, but the evil is generally done in the daytime, and is traceable to neglect of timely ventilation or shading, and sometimes to the too free admission of air on dry windy days. Unfortunately, scorching is not always observed at the time it is done, unless the practitioner notes the earlier symptoms, which are a drooping foliage and flaccid texture; but the scorched leaf becomes perfectly limp and discoloured, like frost-bitten foliage after the sun has shone upon it, and a short time afterwards the tissue gets brown and withered, crumpling up in the fingers like a piece of burnt paper. At this stage it is generally discovered, but the evil is done. Pines are sometimes scorched to a ruinous extent, and they do not exhibit it to the casual observer till some twenty-four hours afterwards, the leaves being thick and fleshy, and the burnt parts taking longer to dry. The leaves are then seen to be quite bleached and dead, and the plant is reduced to a mere stump. We have seen hundreds of plants ruined in this way in a single hour. In the case of the Vine, it is generally the young leaves which suffer most, all their functions being in an active state; but sometimes the scorching takes the form of specks here and there in the leaf, and which are caused by bad glass, but more frequently by drops of water lying on the leaf when the ventilators are suddenly opened under bright sunshine. Whether it is scorching which takes place in the latter case, or it is that the leaves suffer an actual chill, produced by the rapid evaporation of the drops under the sun's rays, is a moot question; but that scorching of this kind does occur under the circumstances described, and can be prevented by early ventilation, so as to dry the leaves gradually before the sun gets high, is a fact. Pines are only burnt by an excessively high and close temperature, and are far more liable to be so when shading is practised; but with early ventilation, increasing it with the rising temperature, they should never suffer in this way. With Vines some varieties are more sensitive than others. The Black Hamburgh is amongst the sturdiest, also the Muscat of Alexandria and Lady Downes. The downy-leaved section always suffers worst. The Marchioness of Hastings, a little-known but vigorous-growing Vine with very woolly leaves, can hardy be prevented from scorching; and hardly less susceptible is the Black Alicante. Young Vines of this sort are often difficult to get up the wires at first, the points of the shoots are so easily singed—making the Vines look as if they were affected with thrips, for which smoking is resorted to; but they are in reality scorched. We were at one time quite puzzled with this fault of the Alicante when we saw nearly every plant in the houses withering at the points of the shoots, while none of the other varieties were affected, and when we knew the temperature had never exceeded 75° or 80° at the most. Finding, however, that they always suffered worse as the canes got higher up the rafters and nearer the ventilators, we concluded it was the draughty gusts of air which sapped the leaves of their moisture, and discovered that by never admitting above 4 or 5 inches of air at the top of the house, and regulating the temperature by the front ventilators, the scorching entirely ceased. This practice is a perfect preventive with other varieties as well as the Alicante. Of course, after the front shutters have been opened to their full extent, and the temperature is still rising, more air must be admitted at the top; but it will be found that admitting the maximum amount of air at the front or sides of the house regulates the temperature better, and creates less draught; the prejudice against giving front air is founded upon no good reason. Vines forced in a moist and high temperature are always the first to get scalded, a fact which suggests its own remedy; but after a spell of dull weather, the healthiest Vines are apt to suffer, unless they are attentively watched.

It is necessary after the dullest weather to give air cautiously, beginning early, and giving little at a time, and it is far safer to permit a rise of 6° or 7° above the usual temperature, than to admit a great volume of air; at the same time copious sprinklings of the borders and paths will lessen the necessity of doing either. Treated thus, the Vines may probably flag during the day, but scorching is not likely to occur. Shutting up and damping as early as possible, too, shortens the period of risk for the time. After the first bright day, the leaves generally recover their equilibrium. When Vines get scorched at night, it is the result of too hard firing, and may be avoided by never allowing the pipes to become so hot that the hand cannot bear contact with them, and by keeping the inside borders, &c., moderately moist. Flues are most dangerous in this respect, through getting accidentally over-heated. As they cannot be cooled so expeditiously as hot-water pipes, they should be at once covered with mats or woollen rags till the heat subsides, taking care the covering does not rest upon the flue, but is only hung over them on a temporary support, so as to leave a space between the mats and the flue. Melons, if not forced too hard, nor shaded, and if supplied with the needful amount of water at the root, are not liable to scorching, and in fine constant weather, with a free circulation of air, they may be subjected to a temperature of 110° or 115° at noon without flinching at all. After a period of dull weather, however, they are apt to be more permanently injured than Vines, if not shaded for a time. The plants do not get actually scorched, but they persist in flagging in a way that defies remedy, and in a week or ten days they somehow die off altogether as if paralysed, the leaves and stems down to the root feeling quite soft and limp. It is no uncommon thing for a house of Melons, apparently in luxuriant health, to go off in this way. The only preventive is timely shading with thin scrim canvas till all danger is over. Though opposed to the shading of Melons generally, we invariably resort to it at such times, especially if the crop is in an advanced state. Cucumbers, though generally considered to require shade, may be grown perfectly well without it; nor, though their foliage is more tender than that of the Melon, and consequently easier burnt, do they often go off in the same way—in fact, rarely. To grow Cucumbers successfully, the temperature should never be much above 80° or 85° by day, nor below 70° at night during summer. If these figures are not exceeded, and air is more or less admitted at all times, scorching need not be apprehended. It is a high temperature with insufficient ventilation which does the mischief to them, and a few minutes' neglect in this way will sometimes denude the plants entirely. Cucumbers root more on the surface, too, than Melons, and require more frequent waterings and top-dressing; otherwise the roots get so bare and exposed that they, too, get burnt sometimes, and the consequences to the foliage are ruinous. Peaches under glass rarely get scorched; they will flag, but seldom shrivel under the brightest sun, even after the dullest weather; and a day restores them again. When hurrrying early Peaches during April and May, we have shut them up with moisture many degrees above 100° day after day, without the smallest injury, at the time or afterwards. I have no doubt they would stand 120° or 130°. Vines we have subjected to 120° as an experiment without any ill results. It is a high and dry temperature generally which scorches; heat, within certain limits, is harmless while the leaves are surrounded by an atmosphere saturated with moisture. Hence it is often advisable to shut up and damp as early in the afternoon as possible when plants are flagging very much, and the leaves are likely to shrivel by longer exposure to the dry air. Besides the kind of scorching here noticed, the leaves of Vines, and also of Melons, often acquire an unhealthy hue when they have reached maturity, which, though not scorching properly, is produced by the same causes—I allude to that rusty brown hue that Vine leaves particularly exhibit just before they fade. The natural colour of a fading Vine leaf is yellow, sometimes shaded with brighter hues as in the Wests' St. Peter, and the leaves should assume this colour gradually and drop before they are completely withered, if they have had a healthy development. Moreover, this condition of things is always attended with the greatest amount of vigour in the Vines, and the best crops. This natural decay is often enough seen in late Vineries that have not been pushed hard, and also in well-managed early Vineries, but more frequently in the latter; the leaves fade, or rather wither, prematurely, and may be noticed standing erect upon the Vines crumpled up like a piece of brown paper. This state of things is often enough assisted, if not caused, by red spider; but at any rate it is a bad sign, and is always followed by debility and failure, for if the leaves are not thoroughly matured the wood cannot be so. Unnatural shedding of the leaves has often created misgivings in the Vine-grower's mind, and he hardly knows how to account for it, or how to prevent it. It is, without doubt, however, the consequence of high-pressure treatment. High night and day temperatures, and a steaming atmosphere, tell upon the tissues of the leaves, and before their natural season has run they give way. A too moist atmosphere particularly—which the greater portion of Vine growers still persist in giving the Vines—is the worst of evils; for it engenders a thin, flabby foliage, that cannot withstand the vicissitudes of weather and the uncongenial conditions at times unavoidably produced in a glass structure. The only preventive measures in such cases are moderate temperature at all times—it is better to start early than to hurry—free and constant ventilation, and very little damping. This will produce foliage not so large perhaps (though big leaves are good if leathery), but of more solid texture, and which will be able to perform its functions till it fades naturally.—" Field."

THE FRUIT GARDEN.

FRENCH PLUMS IN 1875.

Plum trees in France have seldom or never been so loaded with fruit as they are this year; the branches, indeed, bend beneath its weight, and, if not supported, break. The produce is so large that fruit growers scarcely know what to do with it, especially as this fruit, when too abundant, is deficient in sweetness and perfume. In the following list the uses to which each variety may be put are mentioned.

I.—Early Plums.

From July 15th to August 15th.

Early Yellow.—Fruit of medium size, of a pale yellow; good for pastry.

Rivers's Favourite.—Fruit of medium size, black powdered with blue; a small early Plum.

Mirabelle Precoce.—Fruit small, yellow; used whole for preserves.

Precoce de Tours.—Fruit of medium size, bluish-black; used as a medicinal prune. This variety is known at Troyes under the name of the Prune de Monsieur.

Des Bejonnieres.—Fruit of medium size, golden-amber colour; used for pies and pastry, the flavour resembling that of the Apricot.

Monsieur Hatif.—Fruit large and a violet-red in colour; useful for pastry.

Monsieur Jaune.—Fruit large sized and yellow in colour; used for preserving whole.

II.—Mid-season Plums.

From 15th August to 15th September.

Reine Claude.—One of the best of all Plums, suitable for preserving whole, for iced fruit, and for pastry, and when ripe, a celebrated marmalade is made from them.

Mirabelle.—A variety which comes in immediately after the Reine Claude; excellent for marmalade, for ordinary pastry, and for candied brochettes.

Damask Plum.—This type comprises several sub-varieties having yellow, rose, violet, and black skins, and is useful for drying or cooking.

Perdrigon.—A variety of Plum of a violet, red or white colour, originally from different localities; good as prunes, as marmalade, or in pastry.

Reine Claude Diaphane.—A sub-variety of Reine Claude, ripening a week or a fortnight later than that kind; good for conserves.

Kirke's.—Fruit, large, and purplish-black in colour; good as marmalade or in pastry.

III.—Late Plums.

From 15th September to the 15th October.

Tardive Musquee.—Fruit, large; violet-purple; excellent for pastry, and one of the best of kinds for prunes. This variety was obtained at Croncels.

Reine Claude Violette.—Fruit, large; violet-red; good for preserves or prunes.

Madame Nicolle.—A new kind; similar, in colour and taste, to Reine Claude, and good for confectionery.

Coe's Golden Drop.—Fruit, large; golden-yellow, spotted with carmine; for late cropping, or to be dried as prunes.

Mirabelle Tardive.—Fruit, of medium size; sea-green, suffused with lilac. Good for pastry, or preserved in sugar and brandy.

Some, though useful kitchen kinds, are nevertheless also good for dessert. They may be enumerated as follows:

Plums for Preserving.

From August to October.

Quetche (Several Kinds).—Fruit, rather large; violet, tinged with greyish-blue; good for prunes, for tarts, or preserved.

D'Agen.—Fruit, of medium size; violet-rose; excellent when cooked, but better in the form of prunes.

Sainte Catherine.—Fruit, of medium size, and of a pale yellow colour; good for preserves or confectionery.

Reine Claude de Bavay.—Fruit, somewhat large; yellowish-green; good in the form of a prune.

All these varieties may be re-produced by grafting. Sowing the stones has produced new kinds, some of which may be met with in orchards, and are useful for kitchen purposes. The Jaune Tardive of Lusigny is useful for conserves and for cooking. We have said nothing respecting the Plum-Peach (commonly called Royale), nor of Daine-Aubert (Impériale), which is splendid in appearance, and an ornament to the table; but less valuable when stewed, or otherwise cooked.

Plum Brandy.—The distillation of Plums, which is a very prosperous industry on the banks of the Rhine, in Wurtemburg, Roumania, and several of the French provinces, absorbs immense quantities of Plums more or less fit for dessert or cooking. The present year will not easily be forgotten by the distillers. The extraordinary abundance of the fruit has, however, robbed it of both beauty and quality; the crops, therefore, for the most part, will go to fill the casks, and will subsequently find its way to the still. The addition of Bullaces in the cask gives greater strength to the beverage. Plum brandy holds an intermediate place between Cherry brandy and brandy made from cider; it is a tonic, and keeps well.

Care of the Trees.—The trees, exhausted by such a heavy yield, will require some attention. A short time after the crop is gathered, and before the fall of the leaf, the branches should be pruned back, taking care to shorten them sufficiently, so that the worn-out portions may be got rid of and new shoots formed, restoring the shape as well as the vigour of the tree. At this season the sap cicatrizes the wound without any extraneous assistance. Plum trees are not particular as to soil; good Wheat land suits them. They flourish in a climate which suits the Vine; and the commerce, both home and export, which they give rise to, renders them a plentiful source of wealth in France. We may add that in Germany Plum trees have been planted along the lines of road and in public places. This tree, above all others, is likely to put money into the purses of those who cultivate it, and requires a minimum of care and attention. But it will be understood that the strongest subject will not stand extreme exhaustion without being strengthened subsequently in a corresponding degree.

Charles Baltet.

Wigandia caracasana (see p. 191).

VINE CROPPING.

It is a common opinion that, though Vines will bear in a young state—say the year after they have been struck from eyes—it is not advisable to fruit them until the third year after planting, pot Vines or supernumeraries being generally employed to afford a supply of fruit in the interval. Under judicious culture, however, a Vine will continue to bear from the second year after it has been raised from an eye, just as freely and as long as one that has been allowed several years to get established. In 1870 I planted a house of mixed Grapes from eyes the same year, intending them only to remain for two or three years. Five feet of bearing-cane was left to each at pruning time, and the following season (1871) each rod was cropped at the rate of from six to eight bunches, the weight to each Vine being from 8 to 12 lbs. At the end of the third year from planting, and the second of fruiting, circumstances led me to alter my decision regarding them; and, foreseeing that they would be wanted for a number of years, I top-dressed and watered well, and the third year they bore a famous crop again, finishing well, and keeping excellently. The fourth year they bore a similar crop, and this season (the fifth year) they have, perhaps, the heaviest crop upon them that they have yet borne, and the state of the foliage and character of the wood is all that could be desired, promising well for future crops. Now, these Vines have not been able to extend above 12 or 18 inches during the last five years, and they have been pruned on the spur system. They have received no further attention at the roots than an annual top-dressing of loam, rotten dung, and once or twice an application of bones or bone dust; and I have not the slightest doubt that, judging from past experience, they will continue to bear for many years to come, so long as they are not over-worked. In order to fill the house expeditiously the Vines were planted on a ridge of soil in the centre of the house, and trained up and down the wires 2 feet asunder, in which position they still remain. The rods are necessarily short, of course, as was stated before, and we reckon at from 20 to 24 lbs. to the 20 feet rafter, the "up" and the "down" ones making up that length together. As 45 or 50 lbs. is the most we have heard of to 22 or 23 feet rods, trained about 4 feet apart, the above weight may be considered a good average to be repeated year after year with Vines that have been fruited regularly from their infancy, and proves that it is not necessary to wait for years before subjecting Vines to a system of annual cropping. The truth of the matter is, Vine culture is very much a question of cropping. It is a plant which naturally bears at an early age, and there is no reason for thinking that its disposition to do so needs to be checked under ordinary circumstances. An over-cropped plant will soon exhibit unmistakeable symptoms of distress, and it is only necessary to watch these in order to keep up an average state of vigour and fertility. One of the surest signs of over-cropping is barrenness. I have observed this result to follow so often as to leave no doubt whatever on my mind. Last year I saw a house of not very strong Vines, cropped for the market so heavily that the fruit finished anything but well. The bad colour of the berries convinced the grower of his mistake, and he relieved the Vines of their crop as soon as the Grapes were at all presentable for the market; but it was too late, for this season the Vines scarcely showed a bunch each, though they were all Hamburghs. On one occasion, for experiment's sake, I left 19 feet of cane upon a young Vine from an eye that year, and, it being pretty strong, cropped it the following season its entire length, taking some fourteen good bunches from it, which it finished tolerably well; but the year following it did not show a single bunch, and the year after that the crop was far from being a full one. Written instructions with regard to cropping it is hardly possible to offer, so much depends on circumstances; but one can seldom err in estimating what weight of crop to leave by the quality of the preceding year's crop, the state of the foliage, and, above all, perhaps, the character of the wood at pruning-time. If the latter is weaker than usual, even though the previous crop may have finished well, as it sometimes will do in such cases, then the number of bunches to each Vine or rod must be proportionately fewer, and top-dressings and waterings must be more diligently applied during the season. One of our Vineries, which had borne well for nine years—the crops not varying perceptibly in weight or finish during that time, nor the wood or foliage showing any abatement of vigour—at last showed signs of distress, the annual shoots of the Vines being weaker than formerly. This was attributed to the fact that the annual top dressings had not been so rich for a few years back, the borders being well filled with roots, and depending much on feeding. Our restorative practice, therefore, was to reduce the weight of the crop considerably; to apply a top dressing of deodorised night soil and loam, and a good sprinkling of Standen's manure to the border, washing all in well with frequent and copious waterings. This thoroughly restored them; the following year the crop was quite up to the usual average, and they have since been heavier, if anything, than formerly. Under ordinary circumstances, and with fair culture, from 20 to 24 lbs. to the 20 feet Vine rod, is not too great a weight to expect with Vines trained 2 feet apart. I have frequently exceeded this weight, and have Black Hamburghs hanging now at the rate of 30 lbs. to a rod of the above length, upon Vines which have rarely been cropped under 24 lbs. to the rod for years back. These Vines have, however, the advantage of being allowed almost to come away naturally, and are never pushed; early Grapes weigh light, and early Vines must be cropped lighter than late ones. In a question of returns, the distance between the Vines is an important consideration. The passion for large bunches, which can only be produced by unusually strong Vines with a great development of leaf and branch, has led to the practice of wide planting, 3½ and 4 feet being a common distance between the plants. I have not been able to gather as yet, however, from any statistics of Grape growing, that the aggregate weight of fruit is increased by such wide training. On the contrary, we more than suspect it will be found, on inquiry, that in the most remarkable cases of heavy cropping which have been recorded the average weight of crop has been nothing remarkable whatever, considering the length of the Vines and the space they occupy laterally. We have looked into several cases of this kind, and find that the crop has been considered quite extraordinary when the weight of Grapes to a rod of nearly 24 feet in length has reached 40 or 45 lbs., and probably very few instances could be furnished of anything like this weight being sustained for a series of years. Whereas, with Vines trained half the above distance apart (2 feet), 24 lbs. to the rod is not uncommon; and greater weights could be recorded, bringing the average up to about 50 lbs. or more to every 4 feet run of Vinery. It is certainly not at all unusual to see pot Vines 6 or 7 feet high bearing 8 or 10 lbs. of Grapes each, and the plants standing as close together as 12 or 14-inch pots will allow. At the rate of three plants only to a 4-feet light, this would be cropping at the rate of more than 100 lbs. to the 24 feet rafter. This is a perfectly practicable result under good culture compared with which 45 lbs. to a Vine occupying the above space is a mere nothing. We have pot Vines now, in 14-inch pots, that we expect nothing less from, judging from past experience. Grape growing, we apprehend, is generally a question of production with the least amount of expense, and where this is the object it will be found that training permanent Vines more than 2 feet asunder, or at most 2¼ feet, does not pay. This amount of space is quite sufficient for the development of wood and foliage vigorous enough to sustain heavy crops of Grapes year after year. One other matter affecting the weight of the crop is the timely thinning of the bunches and berries. The longer this is delayed, the worse it is for the Vines and the bunches that are left to ripen. Yet few realise that by neglecting to thin out before the berries attain the size of Peas, or by keeping thrice the number of bunches that it is intended eventually to mature, they are taxing the energies of the plants beyond their strength, and the result may be anticipated. The moment the berries are fairly set, at the latest, the bunches should be thinned out to the required number, and the thinning of the berries proceeded with at once. W.

Arundo donax (see p. 191).

A REMARKABLE PEAR GARDEN.

The "Journal of the Central Society of Horticulture of France" contains a description of the Pear tree culture of M. Jourdain at La Lotte, which is situated about three-quarters of a mile from Maurecourt, in France. The garden was formed about eight years ago; the walls being set towards the east, and running north and south. They are 9 feet 6 inches in height, and have a coping which projects some 14 inches from their summit. The ground, for a considerable portion of its length, inclines towards the north. The exterior walls are placed at a distance of about 8 feet from the limit of the enclosure, so as to obtain two exposures, and to admit of both being planted. A line of espaliers, about 7 feet in height, constructed with posts and iron wire, is substituted for a hedge round the enclosure. The interior of the grounds is divided by parallel walls into four equal parts, counter walls being constructed, which sub-divide these spaces, and act, at the same time, as a means of shelter; M. Jourdain, recognising the utility of these walls, is even inclined to increase their number. They are covered with iron wire—instead of laths, which are frequently employed elsewhere—which is stretched vertically at distances of about 10 or 12 inches apart, up the walls, to which they are attached at top and bottom. The length of the walls of this garden, which is one of the most important established for a special culture, is about 4,000 feet; double that length, therefore, is available for planting, both sides being taken into account. The wall trees altogether number 1,072; but, independently of these, there are 363 more trained on espaliers, which are erected about 10 feet from the walls, whilst between the latter and the walls pyramids and standards, to the number of 230, bring the total up to 1,665. For the most part, the form of training is that generally known as the palmette Verrier; on only one wall are the trees trained obliquely. M. Jourdain's selection comprises the most highly esteemed varieties, or those that are known best, and command the most rapid and advantageous sale. The Doyenné d'Hiver predominates, but there are also to be found the following:—Bergamotte Crassane, Bergamotte Espéren, Duchesse d'Angoulême, Beurré d'Hardenpont, and Beurré Diel, besides a few of Belle Angevine, a variety that the proprietor can scarcely afford to discard altogether on account of its brilliant colour, which, notwithstanding the mediocrity of the flavour, obtains for it a rapid sale and a high price. M. Jourdain adopts a method which is by no means a common one for the establishment and formation of his Pear trees. He raises them in his own nursery, the Quince serving as the stock; upon this he grafts the Curé or Belle de Berry, upon which finally is grafted the variety chosen. It is true this plan is not altogether a new one. Many other vigorous-growing varieties are often used for super-grafting, as, for example, the Jaminette, Sucré Vert, Beurré d'Amanlis, &c. A rapid growth is thus obtained with varieties that push slowly when grafted on the Quince or upon seedlings. Amongst these may be mentioned Beurré Clairgeau, Beurré d'Angleterre, Bon Chrétien Rance, or Beurré Noirchain, and others. But M. Jourdain's system differs from others, inasmuch as he allows the first graft—that is to say, the Curé—to grow vertically; and, in order to obtain the tiers of his palmette, he inserts in the upright stem, at a distance of about 10 inches apart, the buds of the variety he wishes to crop. By this means he is enabled to ensure perfect regularity of form and extraordinary vigour. This satisfactory result is obtained by care in the choice of good one year's cuttings of the variety of Quince called La Quintaine, and by using the eyes of young and vigorous trees upon the young scion. It is impossible to overrate the importance of exercising the greatest care in the choice of eyes. Whilst admitting that the method adopted by M. Jourdain is worthy of all praise, it may be remarked that it would be preferable if the variety chosen followed upon the second tier of branches placed upon the Curé and was allowed to complete the shape of the tree. It is to be feared that, as often happens, the sap, flowing towards the centre of the tree, may weaken the lower tiers, and it would be better to place, for the formation of the last tier, a graft of a very productive but weak-growing variety. Experience has shown that the balance of certain forms may, by this means, be easily maintained. It is also to be feared, by reason of the great growth obtained, that, for certain varieties, M. Jourdain does not give sufficient spread to his trees. Last autumn all the trees were bearing an abundance of magnificent fruits, which were carefully distributed so as not to exhaust the branches. Some of them subsequently won a prize at a recent exhibition.

Shanking of Grapes.—If Mr. Ruding (see p. 185) wishes to grow several sorts of Grapes, such as the Golden Hamburgh, Golden Champion, or Duke of Buccleuch, he should graft them on the Black Hamburgh, and allow two canes to run up the roof, one being the graft, the other the stock. In this way the Black Hamburgh provides plenty of roots to support the graft, and thus, by throwing more vigour into the scion, prevents shanking. If Mr. Ruding roots out the Golden Hamburgh, I should recommend him to plant Pearson's Golden Queen, but, if he wishes to retain it, and has a Black Hamburgh growing next to it, he should cut the Black Hamburgh down to a convenient spur at the lower end of the Vine; bring a young shoot across from the Golden Hamburgh, and in-arch it on to it, allowing it to grow from both roots till it has become established, when it may be severed from the Golden Hamburgh root, leaving the young cane on the Black Hamburgh, and allowing a rafter to each. Under this treatment, most of our shy-growing Grapes may be improved. Mrs. Pince has more compact bunches, and finishes better; and Muscat Hamburgh and Madresfield Court grown in this way are not liable to crack. The Barbarossa, grafted on the Black Hamburgh, fruits freely on spurs, and produces more compact bunches, which are more satisfactory for hanging late than large loose ones.—James Smith, *Waterdale.*

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Figs in Scotland.—It may interest Mr. Kennedy to hear that the climate of Scotland has not yet sufficiently changed to prevent Figs ripening well in the open air in Wigtonshire. There is a very good crop this year.—Salmoniceps.

Gilbert's Victory of Bath Melon.—I have found this to be one of the freest-setting Melons I ever met with. It is liable to crack when ripening, but if water is withheld in time to get the border or bed dry just before the fruit begins to ripen, there will be no cracking or rotting, but highly-finished fruit of the best quality. Victory of Bath is one of the very best of Melons, grown either in a frame or on trellis-work. When grown in frames the fruit should be placed on inverted 48-sized flower pots, so as to keep it off the soil, and expose it to light, which materially improves the flavour.—W. W., *Eaglehurst.*

—— I have never tried to grow the Victory of Bath in a frame, but under hot-water culture it is one of the very best thin-skinned and well-flavoured of Melons. It grows and sets freely, and does not crack. I have grown several plants of it this season in 10-inch pots, plunged here and there in a tan bed by the pathway, in a fruiting Pine pit, allowing the fruit to hang over the path. In this way, with liberal treatment, the plants produced three crops in succession; no doubt, however, the roots have got through the bottoms of the pots into the bark bed.—James Smith, *Waterdale.*

THE FLOWER GARDEN.

NEW ROSES, ENGLISH AND CONTINENTAL.

If you wish to have good, stout, well-grown Rose trees, give your "order" for them in October, and you will probably receive them in November, which is the best time for planting them, inasmuch as Rose trees planted then get well established before winter sets in, and bloom well the following summer. I have attended many of the Rose exhibitions this season, and have visited some of the large nurseries in the north of England, where I have seen not only the best of the new Roses, but I also had an opportunity of seeing the growth and habit of the trees on which the best Roses were grown. If I see that a Rose has a weakly habit, or refuses to grow freely, I never take the trouble to make a note about it. In the long lines of Rose trees grown in nurseries where one can see from one to three hundred of the same variety growing in a line, the eye readily detects a row of weakly growers. A Rose with a bad constitution never gives satisfaction; it cannot bear the cutting and pruning necessary to produce good blooms. The following may be relied upon as being good kinds.

Continental Varieties.

Captain Christy (Lacharme).—Habit, good, and of vigorous growth; colour, very soft delicate flesh-pink, deeper in the centre; a beautiful Rose. The outer petals are of a delicate flesh colour, shaded to the centre with a rich pink. In appearance, it is something like Madlle. Eugénie Verdier, but in form is very superior to that kind.

Madame Marie Finger (Rambaud).—Habit good and vigorous; flowers, large, full, and globular in form; outer petals pale salmon-pink, shading off to the centre with a bright salmon-pink. A Rose in the style of La France, the petals of which are rich pink outside and pale flesh inside. Both this and Captain Christy are great improvements upon Madlle. Eugénie Verdier.

Prince Paul Demidoff (Guillot-fils).—Good in habit and fine in form; large and full; a fine variety for purposes of exhibition; colour, bright rosy-carmine.

Madame Nachury (Damaison).—Vigorous, large, and full; colour, satin rose. We have many of this colour, yet there is a refinement and finish about this Rose which renders it desirable.

Souvenir de Spa (Gantrean).—Vigorous in habit, large, and full; petals, thick and smooth, and highly fragrant; foliage, large, broad, and deeply serrated; colour, rich, deep velvety-red, approaching scarlet; outside petals, crimson-red. A large-petalled well-built flower, which, when once seen, may readily be distinguished from all others of its class.

Thomas Mills (E. Verdier).—Growth and habit satisfactory; flowers, large and full; colour, bright carmine, sometimes even brilliant scarlet; foliage, bold and ample. A free bloomer, and a true Perpetual.

Madame Marie Duncan (Lacharme).—Habit, vigorous; petals of great substance and very smooth; highly fragrant, and lovely in the bud state.

Madame Lacharme (Lacharme).—In this variety the bud pleases more than the full-blown Rose, which becomes rough and coarse. It does best in a pot under glass, as, when grown out of doors, it is merely a fine weather Rose. Its petals are thin, and the least rain causes them to rot, the opening buds, after a shower, looking like so many mouldy balls. In bright weather it is, however, lovely, but then only in a half-blown state.

Francois Courtin (Verdier).—Good in growth and habit; large and double. A free bloomer and highly fragrant. A very fine Rose, quite remarkable for its distinct colour, which is cerise-shaded purple.

Pauline Talabot (Verdier).—A free grower, which bears brilliant carmine-coloured blooms of large size, and very double. A good Rose for all purposes.

Madame Hunnebelle (Fontaine).—Moderately vigorous in habit; flowers, large, but not double enough; colour, rose pink.

Kleber (Boyan).—Good in growth, and a free continual bloomer; flowers, deep bright red in colour, of average size and full. A useful variety for the Rose garden.

Madame Louise Leveque (Lévêque).—Habit, good; flowers, large, full, and globular; colour, bright clear rose. A good variety for exhibition purposes.

Etienne Dupuy (Levet).—Good in habit, and vigorous in growth; large and full; colour, rich bright rose, with a silvery shade on the outer petals; not remarkable in colour, but too good a Rose to be omitted in this enumeration.

English Raised Roses.

It may be worthy of remark that nearly all the English Roses, raised by Messrs. Turner, Paul, Laxton, Cranston, and a few others, have proved exceedingly good, and may be depended upon.

Peach Blossom (Wm. Paul).—Good in habit, full, and of average size; circular in outline, and a fascinating Rose, of a colour indicated by the name.

Duchess of Edinburgh (Bennett).—A Hybrid Perpetual, the foliage of which is large and fine, and the wood strong, and thickly studded with spines. It is a Rose of the largest size, and of great substance; colour, delicate flesh, or pale blush, almost approaching to white. One of the finest light-coloured Roses in cultivation, suitable alike for the exhibition table and the Rose garden.

The Shah (Paul & Son).—Velvety-red in colour, shaded with salmon and maroon; average as regards size, perfectly full and round in outline; good in habit. A desirable variety.

Miss Hassard (Turner).—A beautiful pink rose, of the finest form, large and full. Good for any purpose.

The Rev. J. B. M. Camm (Turner).—Good in habit and fine in quality; petals, thick and smooth, globular in form, large and full. A very fine Rose.

The following English-raised Roses are said to be good; but, as I have not yet seen blooms of them, I cannot speak positively as to their merits:

J. Stuart Mill (Turner).—A fine dark clear red.

Sir Garnet Wolseley (Cranston & Mayo).—Rosy-crimson, large, and of the finest form. Said to be a grand Rose.

Princess Beatrice (Wm. Paul).—A light Rose, having many good properties.

St. George (Wm. Paul).—Large and globular in form; colour, rich rosy-crimson.

John Bright (Paul & Son).—Colour, brilliant rosy-crimson, distinct in character, large, full, and of good form. A very effective variety.

Sultan of Zanzibar (Paul & Son).—Colour, deep reddish-crimson; flowers, medium in size and full, rather flat, but good in form.

Duke of Connaught (Paul & Son).—A medium-sized flower, of a rich deep velvety-crimson colour, rather flat in form, but, nevertheless, a pleasing Rose.

Magna Charta (Wm. Paul).—Said to be a good Rose, large and very full; globular in form, the petals being of great depth; colour, bright rose, shaded in the centre, with crimson; very fragrant.

Queen of Waltham (Wm. Paul).—A bright red Rose, large and full, and powerfully fragrant; said to be the best Rose raised by Mr. Paul.

Star of Waltham (Wm. Paul).—Flowers, deep crimson, large, and full, globular in form; petals, stout, opening freely. This and the preceding are reported to be good exhibition Roses.

Lady Isabel Cecil (Laxton).—A new Tea-scented variety, of great merit; colour, creamy-yellow; size, large.

Emily Laxton (Laxton).—Hybrid Perpetual. A grand Rose, similar in form and build to Monsieur Noman, but deeper in colour.

Mrs. Laxton (Laxton).—Said to be similar to that excellent Rose Marie Baumann.

Mrs. Baker (Turner).—Good in habit, and robust in constitution; petals, thick and smooth; flowers, large, full, and globular; colour, deep purplish-crimson; a very dark-coloured Rose, of great merit. Henry Taylor.

Fencote, Bedale.

DOUBLE-FLOWERED POTENTILLAS.

Potentillas are pretty, but straggling in habit, and apt to become unsightly after the bulk of the flowers has come and gone. This is the popular verdict on this class of hardy flowers, and it must be admitted that it is true in the main, in so far as it applies to the single species and varieties; but by no means so as regards the double varieties. There is no getting rid of the loose straggling habit of growth peculiar to the majority of the Potentillas; but very considerable improvement has, of late, been effected in the size and colour of the flowers of both the single and double sorts, and much more may be expected in the course of a few years, especially in the double section which are even now as little objectionable, as regards appearance, as most other herbaceous perennials. The great size and almost perfectly double condition of some of the latter is remarkable and render them fine decorative plants for rock-work and shrubbery borders. They cannot fail to become favourites for these purposes when the prejudice that exists against them is removed by a better acquaintance with their real merits. On rough rock-work particularly they are characteristic and at home. Their loose style of growth is no objection there—it is adapted to the circumstances; and the effect of the large showy yellow and red, scarlet and crimson flowers is excellent indeed. One yellow sort (Phœbus) has flowers as large and double, and quite as effective in every way, as Rosa Harrisonii; and some of the brilliant orange-scarlet varieties are equal to the most sparkling scarlet Geraniums of similar shades of colour. Small plants are not effective, and patience must be exercised till they have fully established themselves with several flowering crowns. It is when the plants are strong enough to throw up six or a dozen flower-stems that they assume their most attractive appearance. On large rock-work they then become very showy; but they do not attain this degree of strength in less than two years. They succeed in any good loam, but prefer it inclining to heaviness; and it should be borne in mind that they can hardly have too rich a soil. They must be placed in a position in which they will enjoy plenty of moisture, for they will not endure drought, nor will they flower so strongly and well in dry as in rather retentive soil. The following list comprises the best at present in cultivation:—P. aurantiaca, fl. pl.—deep rich orange; an excellent double flower. P. Beelzibuth—deep maroon. P. Circe—brilliant vermilion; very large and fine. P. chromatella—fine chrome yellow. P. Dr. Andry—bright red, blotched on the margin with yellow, and veined with orange-scarlet. P. Louis van Houtte—deep dark crimson, very large flowers, and very double, P. Meerscharte—golden-yellow, very large, flaked with vermilion. P. Phœbus—yellow, margined with orange; one of the finest yellow kinds. P. purpurea, fl. pl.—bright crimson. P. purpurea lutea, fl. pl.—same in colour as the preceding, but the petals edged with yellow. P. variabilis—yellow striped, and blotched with yellow in an irregular manner. P. Vulcan—fiery orange-scarlet. P. William Rollisson—rich yellow, margined and shaded with orange-red.—The "Gardener."

Variegated Jacob's Ladder (Polemonium cœruleum).—I will add a line in addition to the notes on this plant by "H. J. C." (p. 144). I have had it for several years undisturbed in a 7-inch pot, having plunged it in the garden during summer and autumn, and put it into a cold frame in winter to keep the foliage dry. Last year, however, it was forgotten, and was left out during the unusually severe winter; but was none the worse for it. Keeping the plants plunged in pots saves trouble, and prevents the variegated foliage from running into too much green. It may be added that P. cœruleum grandiflorum is a very great improvement, both in colour and size of flower, on the old P. cœruleum.—G. Flint.

The Shrubby Stonecrop (Sedum populifolium).—I was rather pleased to see a notice of this fine old plant among the miscellaneous subjects exhibited at a late meeting of the Royal Horticultural Society. The day before, I exhibited, at our local show, a basket of cut flowers, fringed round with small branches of this fine plant in full flowers. Like the flowers and branches of most succulent plants, they are very durable when cut, and the weight of the waxy flowers and thick leathery leaves, causes them to hang, or droop, in a very effective manner. I have grown it for many years, and, some time ago, obtained a prize for it as a hardy shrub. It takes its name from its glaucous green leaves, resembling those of the Populus tremula, or Aspen. It is deciduous, very brittle, and has a totally distinct habit from that of any other Sedum.—F. Williams, *Ormskirk.*

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Dell's Crimson Beet, as a dark foliage plant, has grown rather strongly in lines and borders this season where it was sown, owing to the large rainfall in early summer. It has, however, been of fine colour, and where transplanted to replace Coleuses or Iresines that were killed outright by the cold and severe hailstorms that visited East Anglia, it has, owing to its compact habit, fulfilled its duties well. As a dark foliage plant in exposed situations, it stands unrivalled.—H. G. Wright, *Bury St. Edmunds.*

New Holland Violet (Erpetion reniforme).—This makes a charming vase or rock plant, but it evidently likes plenty of moisture and a cool shady spot in which to grow. It is allied to the Viola family, and I now have it in bloom in a 24-sized pot, having raised it from seed sown in April. The leaves are small and rounded, and are raised about an inch from the soil, forming a dense compact surface. Out of these rise the flowers, on stems some 2 inches above the foliage. They resemble small violet blooms, but the petals are more reflexed, and are in colour blue and white. It can be propagated from seed or by means of the small runners that it throws out in abundance.—A. D.

Double Pelargonium Jewel.—This attractive double-flowered scarlet Pelargonium resembles exactly the old scarlet Tom Thumb, and also the variety known as Madame Rose Charmeaux (or, as it is commonly called, Double Tom Thumb) in foliage and habit; but it is far superior to the latter variety, inasmuch as it develops its flowers more perfectly, the latter being equally brilliant in colour, and produced in equal profusion. I cannot quite agree with "T. V." (p. 128) when he says that "where Tom is discarded his double descendant will probably be welcome to a place," for I do not think that either Madame Rose Charmeaux or even Jewel will enable us to do without him.—H. G. Wright, *Ingham, Bury St. Edmunds.*

MR. GLADSTONE ON COTTAGE GARDENS.

None of us, whatever our political proclivities may be, will be disposed to differ from the views of the ex-Premier upon the subject of cottage gardens. Indeed, the best proof of the unanimity of opinion that prevails upon it is to be found in the fact that Mr. Gladstone, with all his eloquence and ingenuity, could find nothing very original to say in demonstrating the many advantages of the English (or, as he was addressing Welshmen, we suppose we ought to say the British) cottage garden. It is, indeed, says the "Field," amusing, in reading the speech with which the late leader of the Liberal party favoured the rustic inhabitants of Hawarden, to detect the same ambiguity of phrase and intricacy of expression which, before a more august assemblage, has so often rendered obscure the meaning of that which, put into short and simple words of plain English, would be perfectly clear. We suspect, however, that it is because Mr. Gladstone found so little new to say upon his theme that he said it in an involved and roundabout style, that might serve in some degree to disguise the obvious platitudes which make up the bulk of his speech. Still it is gratifying to see so eminent a statesman, fresh from worsting Pope and Cardinal on many a well-worn field of controversy, condescending to pipe to the swains of a remote Welsh village in praise of the ancient and peaceful pursuit of gardening. Besides, the mere fact that Mr. Gladstone has spoken upon the matter will serve to draw public attention to it, when perhaps more practical words from a less well-known person would never reach further than the columns of some local print would carry them. It is not that we want to be instructed upon the advantages of cottage gardens—for most of us know perfectly well what they are, and are quite ready to allow them—but that a timely reminder coming from a conspicuous quarter may induce some of us to put into practice resolutions we have formed and plans we have long entertained, but which from thoughtlessness or carelessness we have delayed to carry out.

When Mr. Gladstone tells us that "a garden is almost always to a poor man—to a person to whom it is of great importance to economise his means—a source of considerable addition to his bodily comforts and to those of his family," we are disposed to smile at the wordiness of the speaker and the extreme caution with which he expresses an opinion universally held; yet this very circumstance fixes the matter in our memory, and when next we have occasion to act in reference to it—to build cottages, for example, to set on foot village flower shows, or in any other way to do anything which may concern the welfare of the agricultural labourer—we shall not forget the cottage garden. Some time ago, during the agitation among farming men, the question of providing allotments for the workpeople was much debated. In some cases allotments can be shown to be a great benefit to those who possess them, while in others they have proved to be a hindrance to the labourer in the proper performance of farm work, especially when they are situated at some distance from his place of employment and from his home; but, although opinions may differ with respect to allotments, we are, as we have said, all agreed that a cottage is no fit home for the day labourer unless there is a good garden attached to it. This being so, it is obvious that anything which may encourage the fortunate possessors of gardens to make the best use of them must be beneficial. In a general way this end is effected by the establishment of suitable prizes at country flower shows for the produce of such gardens, though of late it has been attempted somewhat to extend this notion by founding rewards not merely for the produce of the gardens, but for the gardens themselves, regarded in their entirety. In some respects this is a step in the right direction, because to compare gardens affords a better test of the industry and capacity of the respective owners than to compare specimens of fruit, vegetables, or flowers culled from out of them. We agree therefore, with Mr. Gladstone in hoping that wherever this form of competition is established it may be well patronised. It should, however, be borne in mind in awarding prizes for the best cultivated garden, that to the cottager utility, and not ornament, is the chief object to be looked at. We mention this because recently, in passing by a number of gardens in the eastern counties, some that had taken prizes in a village competition were pointed out to us, where the floral display in the front of the house had evidently weighed heavily with the judges, and covered defects in other more important parts—defects which were absent in some unrewarded plots of ground, where less space had been allotted to Geraniums and Calceolarias.

Nierembergia rivularis hardy.—This has white bell-shaped flowers, with a tinge of yellow. It creeps about rapidly in a moist loam, and, though it is said to require protection in winter, we find it does capitally in a north border with none whatever. The whole plant does not grow more than 4 inches high or so.—Oxon.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Late Crops.—Unless where a deficiency of winter vegetables has been put in, and there are good strong plants at hand of Kale or Coleworts, it is not advisable to plant more of the ground that becomes vacant after this, as the time intervening before the growing season is over is not sufficient to admit of these late-planted crops attaining a useful size, and they seriously interfere with the preparation of the ground for another year without making any adequate return. Let all haulm of Peas, French and Broad Beans, or Lettuces that have run to seed, or anything of a similar description, as soon as they have ceased to bear or to be of further use on the ground, be at once removed. It is a mistake to allow anything of this kind to remain; for, so long as any growth continues, it is so much extracted from the soil to no purpose. They should, therefore, be conveyed to the refuse-heap as soon as possible. Let all ground be well hoed as often as weeds make their appearance; these will not cease to spring for some time yet, growing, as they do, with a lower temperature than most cultivated crops. Where salads are in constant demand, especially in the spring, it is well now to sow a little Corn Salad and American Cress. These hardy plants will stand any amount of frost, and prove useful in the spring. Sow the seeds in rows a foot apart; this will give room to use the hoe in keeping the ground clean. Thin Turnips as they get large enough; if allowed to remain too long they become drawn, which much interferes with their after growth.

Mushrooms.—Amateurs, who have not a regular house for Mushrooms, are frequently deterred from attempting their cultivation. In the successful growing of these vegetables much depends upon the atmosphere that surrounds the beds, and it often happens that the most highly finished Mushroom-houses are anything but the best to grow them in. For market purposes, all through the autumn very large quantities are grown on ridges in the open air, covered with litter in some cases, aided by wooden shutters; but this method requires a good deal of attention and some experience, and is not the most suitable for amateurs to try. A few words respecting the conditions essential to the growth of Mushrooms may not be out of place for those who have not had much practice with them. They require a moist, genial atmosphere to grow in; in other words the air immediately enveloping the beds must be soft and sufficiently warm, subject to no cold draughts or considerable fluctuations in temperature, such as the external air is liable to. From this it will be seen that, to give a reasonable chance of success, a place must be at hand where these conditions, if not existing, can be provided. A close shed—if somewhat low all the better—or any building not too large, that can be spared for the purpose, may be used. Beds of very small superficial area are not so likely to bear so well as those that are larger, for the reason that the body of manure in the place is not sufficient to produce the requisite state of the atmosphere. The manure should be procured from stables where the horses are well fed with plenty of corn, and where there is no deodorising chemical powder or liquid used, as these are fatal to the production of Mushrooms. Let the manure be fresh, not such as has been wet and fermented, and do not use the long littery portion. At the same time it is not necessary to be particular in having nothing but the droppings, as is frequently urged, for a little short straw amongst it will do no harm. As soon as procured it should either be placed in a covered shed where it will not get wet, or at once put where it is to be made use of. In either case, let it be in a moderate-sized heap, and turn it over several times to prevent its getting too hot; this will work off any superabundant moisture, to assist which it should have plenty of air. In the course of a fortnight or so it will be in a condition for making up into a bed. This should be about 18 inches in thickness, the area of which will be regulated by the size of the building or the quantity of manure used. As the work proceeds beat it quite solid with the fork and finish off by making the surface hard and smooth with the back of the spade. In a week's time ascertain the heat of the bed by plunging a thermometer in it, and, as soon as it denotes a little under 80° in temperature, put in the spawn. This should be broken into pieces about the size of pigeons' eggs, and should be thrust just below the surface at intervals of 8 or 10 inches. Try the heat of the bed again in a few days, and, if the warmth is decreasing, put on the soil. Any ordinary loam will do; this must have been turned over several times to get it to the requisite condition. It should not be so wet as to adhere too closely together when pressed by the hand; put it on about 6 inches in thickness, breaking it moderately fine previously, and beating it down with the back of the spade so as to make it smooth. A couple of inches of loose hay should be spread over the surface; in some Mushroom-houses it is an assistance, in others it is not needed; but, when the houses are small, and there is no fire heat used, it is generally required. If all goes well, in a few weeks the spawn will begin to run, which will be seen in the shape of white mould on the surface; after this the buttons will soon commence to make their appearance. There is no precise time that can be stated for a Mushroom bed coming into bearing after it is spawned; those that are the longest before they begin to yield are often the most fruitful after they have commenced. As the weather becomes cooler it will be a material assistance to get in a body of new manure, which can be laid 18 inches or so in depth on the path, and, occasionally turned over; this will raise the temperature of the place and produce an atmosphere conducive to the growth of the Mushrooms; the manure, when fit, can then be made up into another bed to come into bearing after the first is prepared and treated similarly. In growing Mushrooms, it is necessary to take the precaution to always have on hand, where it will not get too wet, enough loam for soiling the beds. When the manure is good in quality, many successful growers mix fully a third of loam with it in the beds. Sometimes a bed will get too dry before it has finished bearing, or even before it begins to bear; the latter not so often. In applying water to these, as in its use with many things, it is a difficult matter to convey in writing a positive knowledge of when it is required. In the cultivation of Mushrooms, if too much is used, it will destroy the spawn; if too little, it will not grow. Amateurs may learn much that will assist them in the culture of Mushrooms by observing the combination of conditions that exist in the ground, and in the atmosphere, in seasons when they are the most plentiful out of doors. The most experienced grower will sometimes fail with them. I have known amateurs in their first attempt to be most successful; where the reverse is experienced, I would say try again; it is only the loss of a little labour, for the manure so prepared is none the worse for ordinary purposes afterwards. In the growth of this esteemed vegetable, it is of great importance to be able to command an equable temperature, and a genial condition of the atmosphere in the place in which they are grown. The best house I have ever seen for producing unfailing crops was nothing more than a long straw-thatched span-roof, resting on the ground with no side walls, but brick gables, with a door at one end, and a flow and return hot-water pipe, covered with grating, running under the path which was down the centre. The beds, about 6 feet wide each, were on either side. Mushrooms can be grown in a place of this description when the weather is too warm for them to do well in the houses generally met with.

Hemp (Cannabis sativa). See p. 191.

Potting Soil, of the different descriptions required for the ensuing year, should now be got in. This ought never to be delayed until it is too late for the roots of the Grass to become dead before it is wanted for use. It also gets much mellower laid together at this season, when tolerably dry, than either in the spring or later in the year. It should be put up in a ridge, some 4 or 5 feet wide at the bottom, sloping up towards the top, so as to throw off the wet. Let the loam be the best that can be had from a common or Grass field, stripped off about 3 inches thick. Fibrous peat should also be obtained, rejecting any that is of a boggy nature.

Pits and Frames.—Cucumbers and Melons.—Where there is no means of growing Cucumbers, except in dung frames, a good lining of fresh manure should now be added to both back and front of the beds; this will greatly assist the plants during the cool nights we may expect, and which will not have the effect of checking growth to such an extent, if there is enough heat in the beds. Late Melons that have yet some fruit to ripen must be well supplied with warmth by means of good substantial linings, and should, in addition, have a mat thrown over them at nights. Wood-lice, should they make their appearance, must also be destroyed.

Hardy Flowers.

The Asclepias family is a distinct one, and should be seen in all collections where hardy plants are grown. There seems at present to be some confusion respecting the names of the different species. A. syriaca (also called A. cornuta) is a robust plant, growing, in rich soil, to a height of 5 feet; it has pale purple flowers in umbels, and the leaves are large and woolly. A. Douglasii (otherwise A. speciosa) very much resembles the preceding. A. incarnata is distinct, with deeper coloured purple flowers in umbels, on the top of the branches, and with narrow leaves. These three species are very sweet-scented, especially A. incarnata. A. tuberosa has bright orange flowers, and is, perhaps, the handsomest of the family; it requires a light or peaty soil, whereas the others succeed better in a rich moist loam. There are several other named species or varieties, but such as I have seen do not seem to differ sufficiently, from a mere horticultural point of view, to be added to the list, and I fancy those who have the preceding are in possession of the most valuable of the family. I had almost forgotten one of the genus sent to me as A. princeps. It seems to be identical with A. Douglasii. Will anyone kindly tell me more about it? One of the finest autumn-blooming perennials is decidedly Chelone obliqua. Place it in a moist situation, and there will be no fear of disappointment. Its flowers are produced in spikes, and are of a handsome rosy-purple colour and of good size; the leaves are oval lance-shaped, and serrated, and the plant grows to the height of 3 feet. Although very rarely seen in gardens, it is a very valuable and distinct subject. Another neglected but fine plant, which should be grown together with Chelone obliqua is Lobelia syphilitica; it requires a moist spot, and blooms about the same time. It is perfectly hardy and very handsome, with large light blue flowers in a long leafy raceme, and is a fellow-countryman of the preceding variety, both plants hailing from those great hunting grounds of the botanical collector—North America. We have also a magnificent (but neglected) perennial in L. Tupa (called also Tupa Feuillei), but requiring different treatment. This plant is not hardy in cold or wet situations, but thrives vigorously on a raised bank or border, and will do thoroughly well on level ground, if the soil be light and well drained. It grows 5 feet in height, with deep red flowers, produced in spiked racemes; the leaves, soft and downy, of an oval lance shape. We grow it here at the back of a mixed border, with no protection whatever, and it never fails to bloom vigorously late in the summer. Any of your readers who may be fond of large and showy plants should grow the magnificent Sunflower—Helianthus globosus fistulosus. It is, unfortunately, only an annual, but it is well worth the trouble of raising a few specimens from seed every year. The plant grows 8 or 9 feet high, and produces enormous bright yellow flowers, 10 inches in diameter. It is distinguished at a glance from the rest of its family by the absence in the flowers of any eye or disc—in fact, the bloom consists of immense yellow globes, though not so like a cannon ball as some illustrated catalogues would have us believe. We have a few plants growing here with the Hollyhocks, behind the trellis-work which divides the mixed border from the kitchen garden department, and the effect is very good. To grow it to perfection it must have, like the rest of the family, rich and deep soil. Amongst the best of the late summer-flowering perennials are, without doubt, some of the Lythrum family, and all the varieties are suitable for moist borders (at the back) or for damp spots in the wild garden. First in point of merit is certainly a finely-coloured variety of Lythrum Salicaria, known as L. roseum superbum, and it well deserves its name. From the Willow-like foliage arise spikes of rosy-purple flowers, produced in the axils of the leaves in whorls, to the height of 5 feet, if in suitable soil; and, with the exception, perhaps, of some of the brightest-coloured Phloxes, I know no other late-blooming plant that will light up a dark background with such a glow of colour. The type (L. Salicaria) is a native, and a very showy one, growing by the side of water. L. verticillatum seems to me very little distinct, speaking only horticulturally; perhaps the purple predominates over the rose, but I do not think that anyone already possessing the rose-coloured variety need go further amongst the family. L. virgatum does not grow more than 3 feet in height, and the bloom is neither so bright or attractive as that of L. roseum superbum. There are one or two other species or varieties; but I cannot give an opinion on them, not having tried them. When the Lythrums are grown in wild places, they can have no more suitable associates than the Epilobiums, either in colour or character.—Oxon.

Orchids.

More than usual attention must be paid this month to shading and watering. The blinds should not be allowed to remain down for any length of time, except during sunshine, as next year's flowering greatly depends on the way in which the growth is ripened this season. After the middle of the month, all permanent shading should be removed, especially in the case of the Mexican and north houses, in which Odontoglossums, and similar plants, are grown. Allow the temperature to fall 5° at night in the East India and Cattleya-houses, and the Odontoglossum-house should be kept, both day and night, as cool as possible. The different varieties of Cattleya Mossiæ will now be growing freely, and care must be taken not to allow a drop of water to fall into the centre of young growths, or it will cause them to damp off. Many of the Cattleya Trianæ section, finishing their growth, will require more light, and a lower night temperature than they have hitherto had. Cœlogyne cristata, just showing the bulbous part of their growth, should be kept saturated with water, and should also receive weak liquid manure twice a week. Pleiones and Calanthe Veitchii and vestita, that have completed their growth, should be placed in an open greenhouse, and gradually dried off. These are useful plants for cutting from during the dark months of winter, and, where quantities are grown for that purpose, they can be had in flower at different times by placing portions of them in heat as may be required. Keep Odontoglossums and Masdevallias well supplied with water, so as to induce the Sphagnum to grow freely on the surface; and look frequently over the plants for small snails and slugs, which are fond of the young roots. Disa grandiflora should be kept cool, and should receive just sufficient water to keep the soil moist. Plants of Lycaste Skinneri will require more moisture as they advance in growth, and they should also receive weak liquid manure once a week, and a sprinkling of water over their leaves on bright days. All Dendrobiums, that have completed their growth, should have more light and air than they have had, in order to ensure plenty of bloom. Orchid-houses will be gay this month with Odontoglossums, Oncidiums, Phalænopsis, Mesospinidium vulcanicum, and others.—E. Culley.

The Flower Garden and Pleasure Grounds.

After the exceedingly abundant rainfall of the month of July last it was thought, with apparent reason, that the occupants of flower beds, as well as recently-transplanted shrubs and trees, could hardly suffer from lack of moisture during the remainder of the season; but, upon light and gravelly soils, this reasoning has been found to be fallacious, as recently-removed shrubs, and the plants in flower beds, &c., have for some time been suffering considerably from the effects of dry weather and bright sunshine. In the case of trees and shrubs which may have been transplanted late in spring watering and mulching will be found to be absolutely necessary, and water should be poured liberally upon the mulching material, the latter having the effect of keeping the soil covered by it in a condition easily penetrable by the water, while the application of water without mulching is frequently of little or no benefit to the plants, as, when poured upon a dry surface, it usually forms channels for itself and runs off, leaving the surface of the soil merely wetted, and evaporation from it very considerably increased. The plants are thus left, in a short time, in a worse condition than ever. This evil is also much increased where the trees or the flower beds to which it is intended to apply water happens to be placed upon a sloping surface. In all such cases mulching should, if possible, be practised. Various materials may, of course, be used for this purpose, such as the mowing of the lawns, rotten hot-bed manure, old Mushroom beds, or tan fresh from the tanyard, where it can be readily obtained. The latter is, perhaps, the least objectionable in appearance, until such time as the foliage, &c., of the plants fairly covers the surface of the beds. It is also the least likely to be pulled about by birds in their search for worms, ants, and other insects, as the fresh tan has generally the effect of driving all such away. In cases where it may not be considered necessary to mulch or to water the beds, the surface of the soil should, however, be well loosened up, as even this attention will very considerably benefit the plants, and will allow the first rain which falls to penetrate the soil freely. Let the varieties of spring-flowering bedding plants, at present in the reserve grounds, have every necessary attention, including copious supplies of water where this is found to be required; and push forward the propagation and hardening off of the various kinds of bedding plants, as upon these operations greatly depend the success, or otherwise, of preserving them in a healthy condition throughout the ensuing winter. Let every necessary attention be still paid to the routine operations of the season; and, although, on account of the recent dry weather, and the comparatively advanced season, mowing will not be so frequently required as heretofore, sweeping up will be very frequently necessary. As leaves have already begun to litter the lawns and walks, these must, of course, be frequently removed, so as to preserve order and neatness throughout the gardens and grounds as long as possible.—P. Grieve, *Culford, Bury St. Edmunds.*

Indoor Fruit Department.

Vines.—Examine the inside borders of late Vineries, and see that the soil is not too dry before the Grapes become nearly ripe. Where such is the case, lose no time in giving sufficient water to mature the crop, and also to keep the soil moist enough to prevent the fruit from shriveling during winter. Every favourable opportunity must be taken advantage of to push on very late Grapes this month, for the decrease in the amount of sun-heat, which will be felt in subsequent ones, will be unfavourable to their development. Late Grapes are better flavoured when thoroughly ripe by the end of September than later, and they are not so liable to damp throughout the winter, when in this state, as when only partially ripe. Gros Colman is, in many instances, a bad kind to colour; but it often keeps well, and is quite eatable when tinted with green. When it is apparent that this variety is not going to colour, by taking a few bunches off (if the crop is excessively heavy) the others are much improved. No anxiety need be felt about the colouring of the Black Alicante; it will do so under all circumstances. The surface of the border, under Grapes ripe for autumn use, should now be kept very dry, to prevent damping amongst the fruit; and do not rake or stir the loose surface soil, or a great deal of dust will rise to rest on and disfigure the berries. Keep the ventilators of all Vineries, in which the fruit is all cut, wide open night and day, so that the wood may become ripe as soon as possible. Do not give young Vines, planted this season, so much water as they required in the earlier stages of their growth.

Pines.—Plants of all kinds, excepting early Queens, now require more fire-heat than they have had for some months, especially at night. On dull days the fire should be kept going quietly throughout, and water must be given in moderation after this period. Newly-rooted suckers do not generally require much water until spring, and they are more likely to become unhealthy when kept very moist than when they are somewhat dry. Discontinue all syringing overhead, excepting after an exceedingly bright day.—J. Muir.

Forestry.

The thinning of plantations may now be commenced, particularly such as are in exposed situations. If thinned now, they will be better able to withstand cold winds and storms in winter, without check, than they would if thinned later. Thin more freely round the margins than in the interior, in order to encourage a bushy habit, so as to afford shelter. The pruning of hard wood can now be done with greater advantage than at any other time of the year; the wounds heal up quicker now than later, and the branches operated on will not throw out so many young shoots as they would do when pruning is done in winter or spring. As a rule, live branches above an inch in diameter should never be cut back close to the stem; but dead branches should, in all cases, be sawn off neatly, close to it, and the wound should be tarred over, or creosoted. Continue the mowing of wood rides and the verges and glades of wood drives. Clear water-courses, culverts, and ditches. Select sites for planting ornamental trees and shrubs, and prepare the ground for their reception; for ordinary-sized trees the pits into which they are to be put should not be less than 5 feet square, and from 18 to 24 inches deep. The ground for shrub planting should be trenched not less than 15 inches deep, and all roots should be carefully grubbed out. The extent of ground intended for forest planting during the approaching season must be selected and determined on, and any clearances or fencing required should now be done. The usual quantity of charcoal needed for home use should now be burnt, before the nights get long and the weather rough. In the nursery, keep weeds in check, and turn and mix quick-lime with compost heaps.—George Berry, *Warminster.*

THE KITCHEN GARDEN.

MUSHROOM CULTURE.

Under this title, some forty years ago, appeared a pamphlet —at the present day very rare—which is often attributed to Baron vander Linden d'Hoogvorst, and which contains such sound practical matter relating to Mushroom culture that we have thought a translation of it might be of service to our readers:—The culture of the Mushroom, so often described, has seldom been accomplished successfully by those who have undertaken it. Chance alone has made it succeed in certain cases; and I am one of those who have found that, for two or three years, a crop was secured, which the following year failed, although the measures used were, in all respects, the same as those first adopted. After observations extending over a series of years, I think that I can safely attribute this difference to three causes—to damp, drought, or bad spawn. It was remarked, long ago, that, in years when little rain falls in May and June, but few Mushrooms are found in the fields during the following September, because the spawn which forms during that season, and of which a portion remains over from the preceding year cannot be developed, and is thus wasted. Keeping these observations in view, I only water my beds four weeks after they are made, and then only when I see at the surface the tips of the Mushrooms, or the small threads that indicate the presence of spawn. To prevent the soil, which should be damp, from forming too hard a crust, I cover the beds with hay or aftermath thrown on lightly. I have also used, with success, for this purpose, old carpets, always, however, putting a little aftermath below them. This covering has the double effect of preventing the bed from becoming too dry, and of preventing the propagation of insects (especially the wood-louse) that are partial to Mushrooms. Drought is much less dangerous to the beds, for the evil may easily be remedied by watering, which must also be done sparingly; it is ordinarily only necessary to damp the aftermath with water, off which the chill has been taken, for cold water, applied when the bed is hot, does great harm. As regards dormant spawn, dryness, and, to a greater extent, dampness, prevent its running. Everything proves the necessity of having good spawn.

Making Spawn.

Spawn may be made in a covered and dry, but not too airy, situation. The corner of a barn, or that of an out-house or shed, or even of a stable, are favourable places for its development. The bed in which it is to be generated should be made early in May, and the following are the materials employed, which may be reduced to smaller proportions, if necessary: —fifty-six barrow-loads of fresh horse dung, six barrow-loads of good garden soil, and one barrow-load of fresh wood ashes, which have not been wet, with half-a-barrow load of pigeon's dung fresh from the pigeon-house; double the quantity of the latter must be used if it be of the preceding year. The whole should be watered lightly with cow's urine or water from the manure heap. When the mixture has been properly made, after various turnings it should be placed to the depth of a foot along a wall; the width may be left out of the question, but it requires a certain bulk in order that it may heat gently. The bed must be trodden down firmly, and, at the end of ten days, the consolidating process must be repeated, and ought to be continued two or three times a week until early in September. The manure, thus prepared, is cut with a sharp spade into squares of about a foot each. These are then left to dry in a granary, or any other airy place from which sunshine and, above all, damp are excluded. These bricks are placed on their sides, and turned from time to time. Spawn thus made will keep good from ten to twelve years, if it is placed in a dry position, free from frost. Sometimes, even in the granary in which the spawn is dried, large quantities of Mushrooms may be gathered; they spring up amidst the debris accumulated along the wall, and even in the crannies between the boards of the floor. Another way of making spawn is as follows; but it is less certain than that just recorded, inasmuch as it is not so easy to find a convenient place for its manufacture. Against an eastern wall, I make a hole a yard in depth, and a yard and a half square, and fill it with rich manure, mixed with a little dry cow manure. After having settled it well with the feet, I make holes through the material to the bottom with a pointed stick of the thickness of a large cane. These holes are then filled with wheaten bran, with which I have previously mixed a pinch of sal ammoniac for each hole. I again make the whole firm, cover with a piece of old carpet, and plank it over to throw off rain. At the end of six weeks, all the manure thus prepared will be found filled with spawn, equally as good as that previously described; but it is more difficult to preserve, as it cannot be formed into bricks, as in the former case.

Dry Cow Manure and Salts of Nitre in Mushroom Beds.

I do not wish it to be inferred that it is impossible to procure Mushrooms without cow manure and without salts of nitre; on the contrary, I believe that, up to the present time, neither of these ingredients have been employed except by me or by those to whom I have explained my method. In the summer of 1829 I had some cow manure collected, intending to use it as compost for Pine-apples the following spring; but, on examining it, I was astonished to find it filled with spawn. Therefore, I left a portion of this cow manure near a wall with a southern aspect, covered it with an inch of good soil, and a month afterwards—*i.e.*, towards the end of May—I gathered from it a large quantity of Mushrooms. After this, therefore, I had all cow dung in my fields gathered as fast as it dried; and, to prevent the premature development of spawn in it, I took care to keep it in a dry granary without letting it touch the wall. As the cow manure of which I am speaking was collected in fields in which Mushrooms grew naturally, I thought that the spawn which it contained might have been obtained from the soil, but experiments, made the following year, proved me to have been wrong; for, of three heaps collected from different fields, one—from a field covered with long Grass, where there never had been any Mushrooms—furnished as much spawn as the other two.

Salts of Nitre.

I have found salts of nitre to answer well in Mushroom beds, causing them to produce abundantly, and earlier by eight or ten days, than beds to which none was applied. My practice is, before placing the cow manure upon the beds, to water it freely with water in which nitre is dissolved, allowing about 2 oz. of nitre for every 4 square feet of surface. As regards Mushroom beds, I may mention that light does them harm, even moonlight, inasmuch as far fewer Mushrooms are found in open fields after a clear night than after a dark one. Further, the practice of using manure that has just come from stables or from a large manure-heap should be avoided; for, in addition to its throwing off a vapour that is injurious, the spawn gets burnt. The manure, to be used after rejecting the most strawy part, should be thrown into conical heaps in the shade, each heap containing about two barrow-loads, and turned occasionally for about ten days in summer and six in winter. When at a proper temperature the bed should be made up at once, covered with cow-dung, spawned and soiled.

Mushroom Beds in Dry Cellars or similar places.

Most people know how to make these beds, I, therefore, confine myself to pointing out what must be avoided if success is to be achieved. The beds must not be exposed to a current of air, and great attention must be paid to the character of the flooring or pavement. If the latter be unfavourable, the thickness of the beds must be increased; and, in order to economise the manure, a thick layer of old tan may be put under it; new tan, however, is the best, or wood Moss passed through an oven, in order to destroy all insects and their eggs. Moss, indeed, may be used under all kinds of beds where damp is to be feared. These two materials may be used for either raised or sunk beds, but above them there should be in every case, at least, a foot in thickness of short stable manure, well trampled down. This should then be covered with 2 or 3 inches of cow manure, watered with salts of nitre in the manner already described. If these instructions are strictly followed, and the temperature of the place is sufficiently warm and dry, Mushrooms will make their appearance some thirty days after the beds have been spawned, but always in a shorter space of time in summer than in winter. Such beds may be placed in the middle of a cellar, on each side of which a gently sloping bed should be made, and, in the middle, a flat bed, round which should run a path for the service of the three beds. This flat bed is a very desirable one, inasmuch as it has generally a larger surface than that of raised beds, and, consequently, produces more Mushrooms. The dimensions of this bed, will of course, vary according to circumstances; but when it is desirable to have it raised it is necessary, in order to economise manure as well as to prevent its giving off too much heat, to make a centre ridge of earth or spent manure from Melon or other beds, or, what is better still, spent tan. When this base, so to speak, is thoroughly consolidated, it is covered with 12 inches of horse manure beaten firmly, and from 2 to 3 inches of cow dung damped with nitre water, as previously explained. The whole having been well pressed down with the back of a spade, the spawn should be introduced in the following manner:—Holes should be made with the fingers to the depth of about 2 inches, and about 7 inches apart; but closer if you have plenty of spawn. Into these, the latter should be inserted in pieces about the size of a Hazel nut; and the holes should then be at once stopped up with earth, as the spawn develops itself better than if it was merely contained in the cow-dung. When the whole bed has been spawned, it is covered with a good inch of soil, flattened and smoothed with a spade; and a little aftermath or hay should then be thrown over it to prevent its drying too quickly. The bed should then be left in this state for three or four weeks; and, if it has been made with care and in a suitable place, small Mushrooms should be developed in from twenty-eight to thirty-one days after spawning, sometimes before, if the temperature is uniform. It should be understood that a cellar where Mushroom beds are to be made should be sheltered from cold and damp; good cellars, however are often too cold in summer, and thus are unfit for the growth of Mushrooms. This applies equally to raised and sunken beds; both should have but 1 foot thick of manure before being consolidated. If the manure is found to be too warm, it will be necessary to wait a day or two before the bed is spawned.

Golden Bamboo (Bambusa aurea). See p. 191.

Mushroom Beds in Hothouses.

It is easy, when constructing a hothouse, for whatever purpose, to make the paths which run round it hollow chambers, 15 or 16 inches deep, in which Mushrooms may be grown. In attending to the latter, all that is necessary is to turn back the flooring of the pathway against one of the sides, when the bed, which should be covered with aftermath, is reached. My houses having been constructed before I had any idea of cultivating Mushrooms, the paths were not hollowed out, but, being sufficiently raised, I was enabled to remedy the defect by placing one or two steps at the entrance. This method succeeded well with me in Pine-stoves and Peach-houses, in which, at the same time, I cultivated French Beans and Vines, although during a great part of the winter the temperature was comparatively low. When the house is warm tepid water should be copiously and frequently applied. In hothouses there are usually to be found numerous out-of-the-way places, especially in the case of forcing-houses, which may be usefully filled with boxes, which, on account of their small size, are of easy transport. In the case of hothouses, a foundation of from 4 to 5 inches of short stable manure is better than anything else, and, in addition, in order to be certain of an abundant return, time must be given to the spawn to develop itself before it is placed in so warm a position; four weeks will be sufficient, and during this interval the bricks should be placed one upon the other in a cellar, where it is neither too cold nor too dry.

Mushrooms in Dwelling-houses.

An experience extending over two years has enabled me to grow Mushrooms in places in which it might be thought they could never be produced. I constructed drawers of deal, which fitted into spaces beneath flower-stands in rooms, and with little trouble, and without any unpleasant odour, I have been enabled to gather Mushrooms all through the winter. Under these circumstances I only use dried cow dung to the depth of 7 inches, without any other manure, and I prepare it in the following manner:—After having thoroughly damped it with nitre and water in the proportion mentioned in a previous portion of this article; I press it down with my feet to the thickness of about 4 inches, mixing with it, as it is put into position, a little earth thrown on by hand. The spawn is then put in, without pressing it down too much, with a little earth and some cow dung, to the depth of 2 inches. Out of ten beds that I made in drawers this year the greater number showed Mushrooms at the end of six weeks—one only being two months. This one was, however, in the coldest situation. I should recommend the drawers intended for use inside a house being prepared two or three months beforehand, so that time may be given for the spawn to "run." I have proved that Mushrooms can thus be grown under staircases, or even in kitchens, but air must not be altogether excluded from the drawers. After these beds have finished yielding, care should be taken to collect the spawn which they contain, as it will be found valuable for making new beds.

Mushroom Beds in Stables.

The most suitable place for Mushroom beds is undoubtedly in stables, where the gentle, equable and vapourous heat contributes much to the development of the spawn. Want of space is the obstacle most frequently encountered, but, by exercising a little ingenuity, few stables will be found in which several series of beds, about 2 feet wide, cannot be constructed. The shelves on which they are to be made should be 26 inches apart; a board, 10 inches wide, should be nailed along the edge, leaving a space of 16 inches to admit of watering and otherwise attending to the beds. The "bunk," thus formed, should be filled with loose manure to the depth of 6 inches, and with 3 inches of cow-dung, damped with nitre and water; an inch of earth should then be laid on the top. A curtain of thick linen, working easily upon an iron rod, forms a door for the aperture, and in this way it is possible to have six Mushroom beds in a height of 14 feet, 2 feet being the width, their horizontal length, of course, depending on the extent of wall.

Open Air Beds.

The position which I chose for my out-of-door beds, had an eastern aspect, partially covered by a projecting balcony. My bed was made on the 1st of May, and I took the precaution of using manure to the depth of 2½ feet instead of 1 foot. The bed was 4 feet wide by 22 feet in length. This bed did not bear until the 15th of June, and it was not until after August that it produced Mushrooms in abundance, which it then did up to December. Since then, excellent Mushrooms have been gathered twice a week, although we are now in February. During the whole of the summer this bed was covered with aftermath, old pieces of cloth being placed over all. In December I use a mulching of stable-manure, put over the cloth.

Remarks.

I may add that a Mushroom bed depends much upon the preparation of the manure before placing it in position. In the first place, an oblong heap, at least 3 feet high, should be formed; this should be beaten down with the back of a fork, taking care to mix the long and the short manure together. It is left in this state for a few days; then it is turned, and what has been at the sides or on the top is placed in the centre. If the weather is very hot, or if much rain falls, the heap should be covered with planks, to preserve it from too much heat or damp. After turning it, and allowing it to remain for ten or twelve days, it may be made up into a bed, and spawn introduced, when the heat is suitable for that purpose. Experience has also taught me that successive crops are seldom obtained in the same place. I have in vain attempted to discover the cause of this singular fact. Last year I tried an experiment with a bed entirely new in form; only at Vienna had I ever seen anything resembling it, and I admit that I borrowed the idea from what I there saw. To avoid the results of always making beds in the same cellar, I dug a ditch in the ground, in a dry and shady situation, roofed and thatched it with straw, and in winter covered it with dry leaves, a foot deep. It yielded plentifully, beginning in November and continuing on till the middle of April, and even after that time. I made a similar bed elsewhere, and it produced an enormous quantity of Mushrooms throughout the summer. This vault should have a very small door at one of its extremities to serve as an entrance. In placing the manure in the middle, in the form of a sunk trench, 6 inches should be left on each side as a "gangway." The manure should not be raised above the level of the soil, upon the edges of which should be placed, at distances, pieces of wood which cross the bed transversely, and which serve to carry a plank, upon which a man may walk in gathering the Mushrooms. The little door should consist of straw, and should be closed with care. From such Mushroom vaults daylight should be carefully excluded, as it withers and destroys the small Mushrooms. The covering may be made with green-cut withies, which are attached to the joints that carry the plank. It is only necessary to cover it with straw to throw off water. This covering should be made flat, so as not to render a large quantity of straw necessary, and to admit of its remaining there without trouble. One more species of Mushroom bed remains to be described, but I have no practical acquaintance with it myself. A most respectable person, in whom I can place the utmost confidence, assured me that it proved very successful with him. It consists in drying, in a granary, horse-droppings, when a sufficient quantity can be obtained. When they are thoroughly dry, these are formed into one large heap, and damped with nitre and water. The heap is pressed firm, and, when well fermented, which will be at the end of ten days or a fortnight, it is laid to a depth of 4 or 5 inches in beds where Melons, Carrots, or other vegetables are grown. On the top, earth, to the depth of 4 inches, is placed, and the Mushrooms spring up amidst the other vegetables. This bed, I am told, lasts a long time; but of course it is necessary to use spawn as in other cases.

NOTES AND QUESTIONS ON THE KITCHEN GARDEN

American Breadfruit Potato.—On lifting a few roots of this Potato some time ago I was inclined to believe that it was similar to Breese's Prolific; but, on digging up a row of each on Saturday last, I have no hesitation in saying that they are distinct varieties. There are some tubers in each sort that are very much alike; but many of the tubers in Breadfruit are perfectly distinct in character from any that can be found in Prolific, and, while growing, Prolific was strongest in the haulm.—Peter McKinlay, *Beckenham.*

Early Rose Potato as a Late Variety.—A writer (p. 107) in speaking of the good qualities of Snowflake as a late variety, takes occasion to condemn the Early Rose and similar kinds as worthless for use in spring. I had some few kept back, which were not used until about the middle of June; these were as solid as they were when lifted in the previous July, and when cooked were mealy and floury; but, undoubtedly, a light soil is essential to bring out the good qualities of this well-known variety.—H. G. Wright, *Bury St. Edmunds.*

ROYAL GARDENS, KEW.

The following extracts, taken from the Director's annual Report, just issued, upon the condition of these gardens, show what progress has been made in them during the past year:—"The hardy Fernery, alluded to in last year's report as being contemplated, has been constructed and planted. It occupies a winding path 40 yards long, which has been made in continuation of that which runs along the front of the rock-work, upon which about 560 species of Alpine plants were grown last year. The Ferns are planted on both sides of the path amongst loose stones, which form a low bank backed by evergreens. For the most part the Old World species are on one side, and the New World ones on the other. An edging of Ivy along the path both tends to keep them cool and damp and to collect the dust raised by the feet of visitors, which, on hot dry days, when many thousands are in the garden, is most prejudicial to the general health of such tender plants. About 150 species and varieties are planted out, many of them represented by both European and American specimens. It has been found necessary to erect a wire fence in front of the rock-work to prevent the visitors from handling the plants and displacing the labels. The collection of Liliums has been removed from the south end of the herbaceous ground, where they suffered from the intrusion of the roots of trees into soil prepared for them, to the west side of the Ivy collection on the other side of the wall bounding the ground. The collection has been removed and planted in two deep beds of mixed peat and loam with broken bricks, which latter are found to be very advantageous for holding moisture in the light sandy soil of these gardens. The beds are edged with Rhododendrons, and bushes of these and Camellias are planted down the centre of each to provide shade in summer and to protect the young growths from the cutting winds of spring. The collection of species of Iris has been extended along the whole length of the west wall of the herbaceous ground (120 yards), and the collections of Crocus, Amaryllis, Fritillaria, Colchicum, &c., have been removed to new beds formed upon the opposite side of the same wall. The Orchid-house has had a porch with double doors constructed at its east end, as recommended in my report for 1873; it is 12 feet long by 15 broad, and provided with side tables and shelves close to the glass. This has proved of the greatest advantage during hot days and when the number of visitors is very great. The Orchids, which on such occasions were frequently withered and scorched, are now sufficiently protected. A collection of carnivorous plants has been arranged on the table on one side of the porch, which, again, it has been necessary to protect from the curiosity of the public by a wire fence.

In the Palm-house, the beds of climbers round the walls under the side-shelves have been renewed and new plants put in. In the ornamental conservatory (No. 4) the Camellias have been planted out in beds occupying the centre of the transepts. During the last year practical lessons in various departments of botany, and its kindred subjects, have been given to the young gardeners, with a view of preparing them better for their duties in general, and especially of qualifying them for Government and other situations in the colonies and India, where a scientific knowledge of gardening, arboriculture, &c., is required. The lessons are given in the evening after working hours, and embrace the elements of structural, systematic, and physiological botany; of chemistry, physical geography, and meteorology, in their application to horticulture; of economic botany, forestry, &c. They are given some in the young men's library, others in the garden or museum. Attendance is not compulsory; but anyone commencing one of the courses is required to go through with it and take notes, which are written out in books, and these are examined periodically. The courses are short, and some of them are repeated twice or oftener during the year, so as to enable a succession of young gardeners (who cannot well attend to more than one course at a time) to obtain instruction in all or most of the subjects taught.

The improvement of the pleasure grounds, with the view of completing the Arboretum and replanting the parts so fast being denuded of trees, is being progressed with. Trenching beds for new plantations, and digging the soil around young trees, and keeping the surface round others free of Grass, so as to allow the rain to penetrate the soil, now employs annually a great deal of labour, and with the present staff it is impossible to accomplish each year what should be done in this way. As, however, the young trees gain stature, this individual attention will be less required. Many standard trees have been planted about the lower end of the lake. Two acres of ground in the vicinity of the Old Palace grounds have been prepared for the reception of examples of the rarer sorts of ornamental trees for the London parks, and will be planted during the coming season. In the Queen's Cottage Grounds many old and dead trees have been removed, and several acres of ground trenched and replanted with a mixture of forest trees and many beds of shrubs have been formed.

The progress of the Pinetum has been very satisfactory, almost all the species having thriven. It has been visited by many public and private collectors from various parts of the world, and especially from the United States where similar collections are being formed. The collection of Willows and Alders along the banks of the lake has been re-examined, and the specimen labelled as a security for correctness of nomenclature in case of the tallies being accidentally or mischievously transposed. A plan of the late banks, with the position of each species, has been made for future reference. The connecting straight walk, parallel to the west front of the temperate-house, alluded to in the report for 1873, has been completed. This walk commencing near the Sion vista, and after a short turn running through the collection of Hollies, is 850 yards long by 4 wide, forming a perfectly straight avenue; about 450 yards of this were formed during the past year and planted chiefly with Taxodium sempervirens and beds of flowering and evergreen shrubs. Crossing this walk diagonally is a vista from the Pagoda lined with Irish Yews. This vista has been extended so as to look across the Deer Park and the Thames to the village of Isleworth. The continuation of it in the grounds is bordered with Japanese Retinosporas and grassed. Extensive mixed plantations of trees and shrubs have been made, skirting the Deer Park, to break the force of the wind, which sweeps over that extensive piece of open ground, and is most destructive to the old trees. The laying out of the rough ground between the Deodar avenue and the Richmond Road, in which is the old gravel pit, has been commenced, and to complete it will take much time and labour. The collection of Clematis, Berberis, Cistus, Hypericum, &c., which occupied the upper part of the gravel pit, has been removed to the nursery, and the operation of sloping the edges of the pit and giving this very formal piece of ground a natural appearance in harmony with its surroundings has been begun. When finished the whole will be replanted, and the above-named collection of plants re-arranged in it, together with the Magnoliaceæ and various other natural orders.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

September 1st.

This meeting was, in all respects, an interesting one, Gladioli, Asters, and other autumn flowers being well represented. Mr. Wm. Paul sent a very interesting collection of Apples, Pears, and Plums; and the show of fruit staged in competition for the prizes offered by the society was a tolerably good one, early Plums and Apples being furnished in abundance.

First-class Certificates.—These were awarded to the following:

Dahlia Triumph (Turner).—A Pompone variety, with smooth, well-formed petals, forming a round compact flower, from 2 to 3 inches in diameter, of a deep, clear maroon-scarlet colour.

D. Lord of the Isles (Keynes).—A finely-formed flower, of a clear rich yellow colour, with a well developed eye; one of the best of new yellow kinds.

D. Maggie Fairburn (Keynes).—A well-formed rosy-lilac flower, rather irregular in petal, but soft and pleasing in colour.

D. John Downie (Keynes).—A finely-formed deep crimson-purple flower, well adapted for purposes of exhibition.

D. Charles Leicester (Keynes).—A finely-formed deep reddish-scarlet flower, with smooth petals and a good eye.

D. John Bennet (Rawlings).—A clear, rich, golden-yellow kind, tipped with vermilion, and having a crimson eye. It is rather irregular in petal, but quite distinct as regards colour.

D. J. C. Quennell (Rawlings).—A clear golden-yellow variety, with a well-formed eye; round in shape, and well worth growing, but apparently somewhat inconstant—one flower shown has a crimson eye.

Rose Rev. J. B. M. Camm (Turner).—A full, globular, Hybrid Perpetual, the deep rosy-lilac petals of which are closely imbricated. It is small in size, but in every way an excellent Rose. Its fragrance is that of the old Cabbage Rose type.

Verbena Lady Ann Spiers (Eckford).—A large-flowered variety, with a good truss; colour, pure white, with a distinct circle of rose around the eye, which is greenish-yellow.

Fourcroya variegata (Croucher).—An elegant plant, of Agave-like habit, having long, undulating, bright green leaves, distinctly margined, and striped with creamy-yellow; a distinct and very effective foliage plant.

Begonia metallica (Croucher).—A distinct caulescent species, having bright bronzy-green leaves, with darker veins, and bearing clusters of large waxy flowers of a pale rose colour.

Improved Garden Frame (Voice).—A useful and substantial frame, in which ample provision is made for ventilation by the use of a screw and winch. For the culture of Auriculas and half-hardy Alpines, as well as for numberless other purposes, these frames may be recommended.

The following zonal Pelargoniums having received certificates at Chiswick the other day may be worth naming here, viz.:—Lady Emily (Pearson), Mark Twain (Miles), Mrs. J. George (W. Paul), General Outram (——), Caxton (Pearson), Lucy (Pearson), Colonel Wright (Pearson), Mrs. Augusta Miles (Pearson), Golden Harry Hieover (E. G. Henderson), Harry King (E. G. Henderson), Rosa Little (Little), W. E. Gumbleton (Downie, Laird, & Laing), R. C. P. Peach (Downie, Laird, & Laing), Tyrsal Rival (Downie, Laird, & Laing), Mrs. Holden (Pearson).

Gladioli.—Messrs. Robertson & Galloway and Messrs. Kelway & Son both had splendid stands in the nurserymen's classes, while the Rev. H. H. Dombrain and Mr. J. Douglas stood in the foremost rank in the amateur classes. The spikes staged in the first prize groups were wonderfully fine, large, and brightly coloured; among them we remarked the following, viz., Sylvia, bright rosy-lilac; Virginalis, white flaked with rose; Amalthea, blush-white striped with red; Ambroise Verschaffelti, blush flaked with rosy-crimson; Hermanni, scarlet; John Waterer, rosy-scarlet and white; Hesperia, vermilion-scarlet; Adolphe Brogniart, rosy-salmon flaked with vermilion; Leda, white flaked with rose; Madame Despartes, white with a purple eye; Anna, salmon and vermilion; Donna Maria, lilac flaked with purple; Horace Vernet, deep scarlet striped with white; La Candeur, white; Pactole, yellow; Psyche, bright rose; Sosius, scarlet and white; Orpheus, white flaked with rose; Monsieur Legonne, bright, vermilion-scarlet and white; Ondine, white with a purple eye; Le Phare, scarlet; Robert Fortune, lilac-purple; Hercules, vivid scarlet flaked with purple; and Primatice, lilac flaked with rose. In the Rev. H. H. Dombrain's group the following were conspicuous, viz., Meyerbeer, salmon-scarlet; Talisman, bright rosy-lilac; La Vesuve, bright scarlet; Triumphans, rosy-red; and Schiller, creamy-yellow with a purple eye. In the class of six kinds, Messrs. Dombrain and Douglas had good stands, the former staging Norma, white flaked with lilac; Louise Vilmorin, white flaked with bright rose; Madame Furtado, white and rose; Meyerbeer, splendid both in flower and spike, and Triumphans. Mr. Douglas had seedling Fifty, a fine large waxy deep magenta or carmine flower, with a conspicuous white stripe; seedling Forty-four, a vivid scarlet striped with white; A. F. Barron, white flaked with rose, and others.

Dahlias.—Of these the best collection came from Messrs. Keynes, of Salisbury, who had James Cocker, rich purple; Hugh Miller, orange-red; Arbitrator, soft rosy-salmon; John Neville Keynes, canary-yellow; Ed. Purchase, crimson; Rival, bright lilac-purple; Annie Neville, white; Henry Glasscock, maroon; Mrs. Harris, white tipped with lilac; Monarch, dark mulberry-crimson; Vice-President, buff-yellow; John Standish, crimson-scarlet; Prince Arthur, yellow; Pauline, orange-red; Queen's Messenger, bright lilac-purple; and others equally good. In one of the stands we noticed a bloom of Charles Backhouse, the best and brightest of all scarlet Dahlias, and quite distinct in colour. Mr. H. Glasscock had a good stand of twelve blooms, including Willie Eckford, crimson-maroon; Acme of Perfection, light straw-yellow; James Service, maroon-purple, and others. The same exhibitor also had a stand of fancies, among which we noticed good blooms of the following varieties:—Flora Wyatt, yellow streaked with red; Laura Haslam, yellow tipped with white; Grand Sultan, yellow speckled and striped with crimson; Viceroy, lilac flaked with crimson; Mrs. Saunders, canary-yellow tipped with white; Pauline, soft orange-red tipped with white, a distinct and peculiarly striking flower. Eleven stands in all were shown, but the wet season has been unfavourable to the development of the blooms.

Hollyhocks and Asters.—Of Hollyhocks, only one stand of twelve blooms was shown. It came from Mr. Wheeler, of Warminster, and contained the following varieties, viz., Hercules, buff; Seedling, crimson; Midnight, glossy maroon, nearly black; Nobilis, rosy buff; Queen of Yellows, sulphur; Gladiator, rose; Empress, purple; and several good yellow and rosy-flowered seedling varieties unnamed. Asters were well represented by excellent stands of both French and German varieties. Of French kinds, Mr. Wheeler, of Warminster, had the best stand, in which were blooms measuring some 4 and 5 inches across, round in form, and having flat bright-coloured petals, the colours being rose, purple, lilac, white, crimson, and carmine. The same exhibitor was also first with a fine stand of globular-shaped German flowers, which are of all shades of purple, lilac, white, rose, and carmine. These flowers have an exquisitely soft, cushion-like appearance, and deserve attention on account of their distinct appearance when contrasted with the flatter French flower. Some good stands of French and German Asters were also staged in competition for Messrs. Sutton's prizes, Mr. J. Morgan, gardener to Major-General Scott, Wray Park, Reigate, being first with a good stand of twenty-four French flowers; and Mr. T. Benham second, with a stand of German varieties. Mr. R. Dean staged twelve fine specimens of French Asters in pots, some of them bearing as many as forty or fifty flowers, and well furnished with foliage; the colours, which were bright and distinct, were of all shades between rosy-crimson and white.

Miscellaneous Subjects.—Mr. Wheeler furnished a good stand of Zinnias, the colours of which were vivid scarlet-crimson, lilac-purple, creamy-white, orange, and orange-yellow. Mr. C. Turner, Slough, staged six plants of Lilium auratum, bearing ten and twelve flowers each. Mr. W. Bull contributed a group of new Orchids and Aroids, including three varieties of Dracontium, closely resembling Amorphophallus in habit. The same group also included Mormodes Skinneri, Polycycnis muscifera, Cypripedium Ashburtoniæ, C. Sedeni, Pescatorea eburnea, and the white-sepaled, purple-lipped P. Dayana splendens. Mr. B. S. Williams exhibited an effective group of stove Palms, Dracænas, Ferns, and Orchids, including a dark-spotted form of Roezl's Odontoglot, a strong two-flowered spike of the showy Cattleya gigas, Filicium decipiens (an elegant plant with finely-lobed digitate leaves of a fresh green colour), Sonerila Hendersoni argentea, S. H. marmorata, and other novelties. The same exhibitor also staged five well-grown crimson Cockscombs, some of the heads measuring fully 30 inches from tip to tip. Mr. B. S. Williams had also two new evergreen shrubs, viz., Coprosma picturata Stockii, a kind having glossy, oblong, ovate foliage, blotched with lighter green and golden-yellow; and Photinia serrulata variegata, a variety with deep green, oblong, serrulate leaves, irregularly blotched or margined with creamy-yellow. Mr. J. Aldous staged a tastefully-arranged group of Palms, Ferns, variegated Bambusa, Dracænas, and Yuccas. Mr. R. Dean furnished cut flowers of Phlox Drummondii cardinale, crimson scarlet; and P. Drummondi splendens grandiflora, scarlet with a bright eye. The same exhibitor also sent Erpetion reniforme or New Holland Violet. Messrs. Osborn & Sons contributed a new finely-cut form of Pyrethrum Golden Feather, quite distinct from, and more elegant than, the common Golden Feather. Mr. Croucher sent two cut flowers of Echinopsis pallida, tubular in form, white suffused with flesh and delicately scented. Mr. H. Williams, Finchley, sent two white flowered Pancratiums, viz., P. ornatum and P. angustatum, and seedling plants of Leucodendron argenteum. Mr. King, gardener to Colonel Holder, Allanhay Park, Berks, showed a pink-flowered silver-margined zonal Pelargonium named Marion Harper, a free-blooming and effective variety. Mr. Keynes, of Salisbury, sent a new Tea-scented Rose named Letty Coles, of a delicate rosy colour and good in form, a sport from Madame Villermoz. The same exhibitor had also a deep rich pink-flowered Pelargonium named Mrs. Dodds, a kind having large green leaves and a distinct and effective variety.

Fruit.—A dish of Apples, named Irish Peach, but really Red Astrachan, came from Mr. R. Dean, of Ealing. Mr. Harding staged a conical-shaped Apple for Early Julien, but certainly not the fruit described as such in works on pomology. Mr. Brush, gardener to Lady Hume Campbell, had a splendid dish of Lord Suffield, one of the best kitchen Apples grown; and Mr. Benham, of Bagnor, had a showy dish of the Red Astrachan. Mr. J. Douglas furnished Kerry Pippin, and Mr. W. Gardiner, Lower Eatington Park, Stratford-on-Avon, had a good dish of Red Quarrenden. Of Pears, Mr. J. Douglas had Souvenir du Congrès; Mr. Wheeler, Madame Treyve; and Mr. Taylor had also an excellent dish of Williams's Bon Chrétien. Plums were well represented. Mr. A. Bridgeman had six good dishes of the following kinds, viz.:—Kirke's, large, purple; Diamond, large, oblong, purple; Greengage, fine, highly-coloured fruit; Jefferson, rich orange-yellow, suffused with rose, and speckled with red; Reine Claude Violette, reddish-purple; Washington, bright orange-yellow, suffused with rosy-lilac. Mr. R. Dean had good dishes of Grosse Mignonne Peach and Moorpark Apricot, and Mr. J. Douglas staged a splendid dish of Rivers's Pine-apple Nectarine. Among miscellaneous fruit, Mr. F. Dancer, Chiswick, had specimens of the Sultan Plum, and two seedling Damsons were sent by Mr. Horley, of Toddington, Beds. These came up promiscuously under a Damson tree in his garden in the spring of 1870, and now bear about a bushel of fruit each. Specimens of Lord Suffield Apple came from several exhibitors. Mr. Sage, Ashridge, sent an interesting collection of eight kinds of Filberts, including Red Filbert; Frizzled Filbert, a most prolific bearer, but rather small; Kentish Cob, a well-known and prolific variety if grown on a single stem and spurred in annually; Close Filbert, a prolific form, bearing from three to eight Nuts in a cluster; and the Purple-leaved Filbert, which is principally valuable as a dark-leaved foliage shrub. Mr. W. Paul sent fourteen dishes of Apples in excellent condition, and seven dishes of early Pears, including Hessle, Williams, Seckle, Green Chisel, and others. Five dishes of Plums, including Early Orleans, Belgian Purple, and others, came from the same exhibitor.

Messrs. Kelway & Sons sent a new Cucumber, named Conqueror, a fresh green white-spined variety, varying from 16 to 28 inches in length. Mr. Voice, of Horley, Beds., sent an example of his improved garden frame, filled with a luxuriant Telegraph Cucumber, in full bearing. A new white Lobelia, named White Beauty, came from Mr. W. Spinks. It belongs to the dwarf section, and is one of the best white varieties we have yet seen. Mr. C. Noble, of Bagshot, sent cut specimens of a pale lilac form of Clematis Jackmani.

Mr. R. Dean, Ealing, sent specimens of Cobbett's Improved Maize or Indian-corn, the yellow Cobs being well developed, and 6 or 8 inches in length. This Corn was nearly ripe, and was the produce of seed sown on April 15th of the present year. This variety appears to be one of the hardiest of all the cultivated forms; and, as green Maize is a most delicious table vegetable, this kind is well worth a trial in rich warm soils.

COLOGNE INTERNATIONAL EXHIBITION.

This exhibition was opened with considerable ceremony on the 25th ult. by His Imperial Highness the Crown Prince of Prussia. The area of the ground in which it took place is about 12 acres, to which the Flora Gardens, being in immediate proximity, are added. The applications for space at the last moment were so numerous that additional room had to be provided for machinery. English nurserymen were represented by Messrs. Veitch, Williams, and Laing, all of whom exhibited some excellent plants. Messrs. Veitch furnished Nepenthes, Palms, Orchids, Dracænas, Crotons, and Ferns. Mr. Williams had a fine array of Dracænas, Palms, Orchids, Crotons, and Nepenthes. Mr. Laing furnished his finest gold and bronze Geraniums and new tricolors. Among English hothouses, that of Mr. Dennis stood alone—a small octagon Victoria Regia house, which was erected under the direction of the Flora Committee, and was much too small for the purpose intended. Of foreign houses there was a tolerably good array. The principal exhibitors were Mr. G. Schott, Breslau, who showed a double-glazed span-roofed house, a fair specimen, but the two roofs were much too close together. Mr. Pantz, of Metz, erected a new Palm-house, which, as well as that of Mr. Schott, to which it was joined, was intended to be a permanent structure. This was a good house, and decidedly one of the best specimens of hothouse building in the exhibition. Mr. G. H. Bruns, jun., of Bremen, exhibited a corresponding house to that of Mr. Schott, but single glazed. In every instance the all-important subject of ample means for ventilation was lost sight of, only here and there a sash being made to lift. Messrs. Weeks & Co., of London, have warmed the Palm-houses by means of their duplex upright tubular boiler; not, however, for competition, but under the instructions of the Flora Society. Mr. Debard of Sarcelles, exhibited a small lean-to house, showing the use of his double-grooved bar for conducting condensation into the gutter and preventing drip; it was of the same description as that which has been in use in this country for many years. As regards heating apparatuses, there were certainly some strange contrivances on the dip principle. Advantage evidently had been taken of the discussion which recently appeared in our pages with reference to the abolition of deep stoke-holes, and that with very doubtful success. Four systems of warming were exhibited, about which we may have something to say hereafter. C.

ALEXANDRA PALACE.

September 2nd, 3rd, and 4th.

This is the best show of fruit that has been held this season. Grapes are exceptionally well represented, and Mr. Coleman's examples of Waltham Seedling, Black Hamburgh, and Lady Downes possess a superiority of finish, as well as size of berry, rarely seen. The Pines staged by Mr. Wilson, gardener to Earl Fortescue, Castle Hill, South Moulton, Devon, are also splendid examples of good culture. Peaches and Nectarines are good, as are also Apples and Pears. The only drawback was want of system in the arrangement, which was bad and ineffective.

Collections of Fruit.—In this class Mr. Coleman, of Eastnor Castle, Ledbury, has a fine group well arranged, and consisting of Black Hamburgh Grapes well coloured, and good examples of Waltham Cross, a good white variety; Lady Downes, in splendid condition, and Muscat of Alexandria, well coloured; Kirke's Plum, Gilbert's Victory of Bath Melon, Bellegarde Peaches, finely coloured; Elruge Nectarines, Brown Turkey Figs, in very good condition; Cox's Golden Gem, a splendid round deep golden Melon, slightly netted; Jefferson Plum, and a very fine dish of Williams's Bon Chrétien Pears. A dish of a dozen Moorpark Apricots struck us as being the finest fruit we have seen this season, and a splendid dish of Morello Cherries contrasted with them admirably. Two good Pines, one a Smooth Cayenne and a Queen, completed the collection. Mr. Wildsmith, of Heckfield, had excellent Grapes, his Lady Downes being perfect in colour and finish, and the Black Hamburgh in every way excellent, and a couple of well-grown Cayenne Pines deserve notice. Associated with these were dishes of Diamond Plums (purple), Jefferson (yellow), Shipley's Apricot, Heckfield Hybrid Melon, Downton Nectarine, Morello Cherries, Noblesse Peaches, Gilbert's Hero of Bath Melon, Williams's Bon Chrétien Pears, Brown Turkey Figs, and Beauty of Montreal Apples, a long fruit, as brightly coloured as the Lady Apple, and very ornamental in a collection. Mr. Goodacre, gardener to Lord Harrington, at Elvaston, has a well-arranged collection, containing good black Grapes and Muscats of excellent quality, but which had unfortunately suffered from travelling; a well-ripened Smooth Cayenne Pine, splendid Jargonelle Pears, Morello Cherries, Gilbert's Green-flesh Melon, Violette Hâtive Nectarines, Royal George Peaches, and a large netted Melon, named Horticultural Prize. In the class of twelve dishes of fruit, exclusive of Pines, three good collections are staged, the best one containing Violette Hâtive Nectarines, Cosford Nuts, Jefferson Plums, Black Hamburgh Grapes, Brown Turkey Figs, Moorpark Apricots, Bellegarde Peaches, Bon Chrétien Pears, Kirke's Plums, Greengage, and a good Melon. The second collection contained excellent Noblesse Peaches, Transparent Gage, Murray Nectarines, green-flesh Melon, and Beurré Superfin Pears. In the third group we noted excellent Oranges, giant red and white Grape Currants, Morello Cherries, Vicomtssse Hericart de Thury Strawberries, Warrington Gooseberries, and excellent Cob Nuts. The first prize group, staged in competition for the collections of fruit, exclusive of Pines, contained excellent Moorpark Apricots, Kirke's Plum, Irish Peach Apple, Morello Cherries, Elruge Nectarines, Brown Turkey Figs, excellent Jargonelle Pears, Black Hamburgh and Buckland's Sweetwater Grapes, Greengage Plums, and Grosse Mignonne Peaches. In class 3, two excellent groups are staged, in the best of which we noted very good Moorpark Apricots, Crawford's Early Peach, good Jargonelle Pears, Jefferson Plums, Morello Cherries, Oldenburgh Nectarines (very highly coloured, and fine), White Genoa Figs, Red Astrachan Apples (very much bruised), Violette Hâtive Peach, and Golden Gem Melon.

Grapes.—These were well represented by some excellent baskets and single bunches. In the class for baskets not to exceed 12 lbs., the first prize group consisted of splendidly finished clusters, densely covered with bloom; and the second and third prize groups were also of excellent quality, and well finished. In this class there were eleven exhibitors, all of whom staged good fruit. In the class of eight clusters, the best collection contained fine fruit of the following kinds, viz., Muscat Hamburgh, evenly set and well finished; Tynningham Muscat, a good well-set tapering cluster; Lady Downes, a shouldered bunch, with large well-finished berries; Black Hamburgh, the berries of which were good, well coloured, and distinctly hammered; Buckland's Sweetwater, good and well coloured. The two largest bunches in this group were Black Alicante and Gros Coleman, both well coloured, and furnished with a dense blue bloom; and good clusters of Muscat of Alexandria completed the collection, which was in all respects a good one. Amongst other varieties staged in this class by other exhibitors, we noted Black Prince, Foster's Seedling (white), Bowood Muscat, Candia Muscat, and one cluster of Buckland's Sweetwater, of a clear amber colour. In the class of four varieties, Mr. Coleman, of Eastnor Castle, has well-grown Waltham Seedling Grape, beautiful examples of Black Hamburgh, very good Muscat of Alexandria, and a superb bunch of Lady Downs seedling. In the class of three bunches of Black Hamburghs, some fine fruit was staged, but we were sorry to see that much of the best of it had suffered through being rubbed or shaken in travelling. The first and second prize stands are, however, excellent in every way, the bunches and berries being large, well coloured, and perfectly finished as regards bloom. There were ten entries in this class, and seven exhibitors staged very fine fruit. The class for Muscat Hamburghs was represented by five exhibitors, two of which consist of remarkably large bunches, indeed the three clusters sent by one exhibitor could not have weighed much less than 12 lbs, but are rather deficient in colour. Madresfield Court, a large oblong-berried black Grape, is furnished by two exhibitors, both of whom had excellent examples both of bunches and berries Black Alicante is staged by three growers, Mr. Coleman's examples being rather smaller than others in size of bunch, but simply perfect in size of berry, colour, and finish. Lady Downes in the three-bunch class is contributed by eight exhibitors, the first prize group containing splendid examples, perfect both in bunch and berry. In classes 16 to 22 some very good Grapes are staged, the varieties being Black Hamburgh, Muscat Hamburgh, Muscat of Alexandria, Duchess of Buccleugh, Canon Hall Muscat, Buckland's Sweetwater, and others. The Grapes in most of the classes for flavour are, as is usually the case, very unattractive in appearance. Muscat of Alexandria, in class 15, is furnished by seven growers, the first prize clusters being but of moderate size, but perfect in colour and fresh. In the class for ornamental baskets of white Grapes there are seven entries, and two very good baskets of Muscat of Alexandria are staged, together with a basket of Foster's Seedling. In the class of two clusters of Black Hamburgh some well-grown fruit is staged, but it has, in nearly every case, been damaged during transit. Messrs. Lane & Sons, of Berkhampstead, send four large and well-fruited pot Vines, the varieties being Foster's Seedling, Black Hamburgh, and others.

Pines.—The best fruit in the show consists of a dozen splendid examples of Smooth Cayennes, said to have fruited in sixteen months, and ranging from 5½ to 6 lbs. in weight. They are furnished by Mr. Wilson, gardener to Lord Fortescue, and well deserve the extra award made to them. In class 4 some very good Smooth Cayennes are also staged, and there are good samples in the class for Queens.

Peaches and Nectarines.—Peaches are staged from about thirty exhibitors, and we noted four large and highly-coloured examples of Violette Hâtive, Bellegarde, Barrington (very good), Crawford's Early, a distinct yellow, shaded with deep crimson on the sunny side. Noblesse is well represented. About twenty dishes of Nectarines are staged from as many growers, and among these we noted a fine dish of Rivers's Pine-apple from Mr. Stevens; Elruge, highly coloured, from many exhibitors; and some good examples of Pitmaston Orange. One of the most distinct is Rivers's Victoria, a splendid dish of which is shown by Mr. Earp; and a dish of Lord Napier, especially good, comes from Mr. Luckhurst.

Apples.—Dishes of these are furnished by some forty or fifty exhibitors, among the best kitchen varieties staged being the following, viz.:—New Hawthornden, French Codlin, Lord Suffield, Warner's King, Kentish Fillbasket, Cornish Gilliflower, Nelson's Glory, Bedfordshire Foundling, Mère de Menage, Flower of Glamis, Keswick Codlin, Waltham Abbey Seedling, Jolly Beggar, Reinette du Canada, Derby Apple, Golden Noble, Dutch Codlin, Scarlet Incomparable, Blenheim Orange, and Alfriston. Among the dessert varieties we noted Cox's Orange Pippin, Kerry Pippin, King of the Pippins, Red Astrachan, Red Quarrenden (Devonshire Quarrenden), Sweet Julien, Ribston, Bess Pool, Fern's Pippin, Sykehouse Russet, Duchess of Oldenburgh, Peach Apple, Early Harvest, Pitmaston Pippin, and others.

Pears.—The class for twelve varieties of Pears contains no fewer than sixteen entries, making a total of 192 dishes, and consisting of most of the popular sorts now grown, but, being generally in an unripe condition, they are not so attractive as they otherwise would be. Among them are Williams's Bon Chrétien, Beurré Clairgeau, Gansel's Bergamot, Louise Bonne of Jersey, Glou Morçeau, Beurré Rance, Doyenné Bossoch, Beurré Bachelier, Souvenir du Congrés, Doyenné du Comice, Grosse Calebasse, Duchesse d'Angoulême, King Edward, Jersey Gratioli, Flemish Beauty, Marie Louise, Beurré Diel, De Tongres, Chaumontel, Passe Colmar, Beurré d'Amanlis, Van Mons Léon le Clerc, Victoria, Knight's Monarch, Easter Beurré, Thompson's, and Brown Beurré. Jargonelle, Williams's Bon Chrétien, and Louise Bonne of Jersey, are the kinds principally exhibited for flavour, and the prize was awarded to specimens of Williams's Bon Chrétien.

Plums and Figs.—The classes for Plums contain some good collections, among which we noticed Kirke's large Purple, Goliath, red; Greengage, Transparent Gage, Jefferson, Washington, very lovely in colour; Victoria, Pond's Seedling, large in size and good in colour; Guthrie's Late Gage, a beautifully-marbled very distinct variety; very good Magnum Bonum, Dove Bank, and excellent examples of Belgian Purple and Diamond. In the class for Figs, Brown Turkey and Brunswick are well represented by large finely-finished fruit.

Miscellaneous Fruit.—Mr. W. Paul, of Waltham Cross, exhibits a collection of more than 300 varieties of Apples and Pears, correctly named. Mr. Rivers, of Sawbridgeworth, also furnishes a rather smaller, but excellent collection of Apples, Pears, and Plums. Among the Pears here shown, we noted excellent examples of the new Souvenir du Congrés, a large fruit of excellent flavour; Clapp's Favourite, very fine: Louise Bonne of Jersey; Beurré d'Amanlis, Panachée, a handsome greenish fruit, distinctly striped with red; also specimens of a new seedling Pear, with a clear yellow-waxy skin, resembling the true Louise Bonne. Among the Plums are good specimens of Sultan, a large roundish red Plum, covered with a blue bloom; Kirkes' Victoria, Belgian Purple and Diamond. In Mr. Rivers's collection, we noted two very fine home-grown Oranges, for the culture of which the Sawbridgeworth nurseries are famous. One of these, an ordinary St. Michael variety, of a deep orange colour, is fully 20 inches in circumference, and has a very beautiful appearance on the table; another, named Mrs. Markham's Orange, is nearly as fine, but of a pale straw or citron colour. Mr. Rivers also has a choice collection of pyramidally-trained Apple, Pear, and Peach trees in bud. Messrs. Paul & Son, of Cheshunt, sends sixty varieties of dwarf pyramidal Apples, worked on the Paradise stock. This collection has been lifted from the open ground, specially for this show, and are shown in small wicker hampers, as being lighter and more portable than pots. They occupy the centre of the transept, and form one of the most conspicuous and interesting features in the exhibition, and the best illustration in favour of the culture of bush Apples on the Paradise we have yet seen at any fruit show. Mr. R. Webb, of Calcot Gardens, near Reading, shows twenty-eight varieties of Filberts and Cob Nuts, including several seedling varieties raised by the exhibitor. Some splendid specimens of a large and new culinary Apple, named Peasgood's Nonesuch, come from Messrs. W. & J. Brown, Stamford.

Dinner-table Decorations.—Some pretty arrangements in this way are exhibited. The first prize table is ornamented with three central glass vases, neatly filled with Lygodium and Maiden-hair Fern, blue Agapanthus, scarlet Vallota, white Eucharis, and Pancratium, on a cool green base of Fern. The upper trumpet-shaped vases are filled tastefully with wild Grasses and sprays of Celosia pyramidalis, the middle tier of the central stand being draped with fresh green Maiden-hair Fern, on which repose white Bouvardia, blue Agapanthus, and flowers of a white crimson-veined Cape Pelargonium. The stems of these vases are gracefully draped with the mauve-coloured Bougainvillea glabra and fresh green Lygodium scandens. Miss Edith Blair has a charmingly-arranged table, on which is a central plant of the elegant Cocos Weddelliana on a carpet of Maiden-hair Fern and Pteris serrulata, on which flowers of blue Agapanthus and white Eucharis and Stephanotis are arranged with excellent effect, a single spray of the brilliant orange Tritonia aurea being added for contrast. This is flanked by two elegant plants of Grevillea robusta on a carpet of Lastrea filix-mas, on which are arranged scarlet Gladioli flowers and white Bouvardias. This table is so simple, fresh, and natural that we were sorry to see it unrewarded. Two or three other tables compete in this class, but they do not call for special comment. In the class of three vases or stands, decorated with flowers for the dinner table, Mr. Hudson, Champion Hill, exhibits tasteful arrangements, consisting of a central plant of a graceful pinnate-leaved Palm, draped with Lygodium, and having a bank of fresh green Ferns and elegant Grasses at the base, enlivened with white Eucharis, blue Agapanthus, and scarlet Vallotas. The two end trumpet-shaped vases are filled with Grasses and Chelone barbata, rosy Rhodanthe with scarlet Begonias and rose and white Lapageria flowers as pendents, while the slender stems are wreathed with blue Passion-flowers, and, at the base, Ferns, scarlet Rochea flowers, and Ixoras are used with excellent results. About twenty bouquets are staged, all of the conventional Mushroom type.

Vegetables.—Some good collections of vegetables are shown, consisting of Carrots, Turnips, Potatoes, Peas, Cauliflowers, Tomatoes, Celery, Artichokes, Marrows, Salsify, Scorzonera, and Cabbage. Mr. Bloxham has good examples of Veitch's Perfection Pea, very fine Trophy Tomatoes, Canadian Wonder Beans, Banbury Onions, and Leicester Red Celery. Another excellent stand from Mr. Smith, Cheltenham, contains Pooley's Prolific Bean, Veitch's Perfection Peas, Wyatt's Prolific, Veitch's Autumn Giant Cauliflower, Nantes Carrot, and excellent Cucumbers. Another excellent and well-staged group, from Mr. Cox, contains young Marrows and good Scorzonera, and Salsify, Nuneham Park Onion, James's Scarlet Carrot, Early London Cauliflower, Cocoa-nut Carrot, Ne Plus Ultra Peas, Spinach, Beet, and good white Turnips. Mr. Holder, Presbury, near Cheltenham, has a fine tray, neatly staged, containing Ne Plus Ultra Peas, Giant Celery, Six-weeks Turnip, James's Carrot, Veitch's Autumn Cauliflower, Blue Gown Cucumber, dwarf French Bean, and Capsicum. Other excellent collections also come from Cheltenham, and there are some good salads.

Miscellaneous Subjects.—Mr. B. S. Williams shows several effective groups of new and rare Ferns, Palms and Orchids, and other decorative plants. Mr. Deard has his improved Tubular boiler, Mr. Voice, of Horley, an improved garden frame, and Mr. Matthews, of Weston-super-mare, a collection of ornamental vases and plant pots.

For a list of prizes awarded on this occasion see our advertising columns (p. xiv).

No. 199.] SATURDAY, SEPT. 11, 1875. [Vol. VIII.

> "This is an art
> Which does mend nature: change it rather: but
> The Art itself is Nature."—*Shakespeare.*

THE CHINA ASTER.

This, owing to some arbitrary rule, is divided into two sections, namely, the French and German. Why these national appellations should be given to it, it would be hard to say, and, probably, no very good reason could be given for such distinctions. Both flat-petalled and quilled Asters are grown in abundance in several countries, and, without doubt, either might be with as much propriety termed English as anything else. The distinctions of flat-petalled and quilled are easily understood, and the difference in the flowers is so great that they might almost be taken for distinct species. It is, however, most likely that they are merely examples of what can be accomplished by the persevering florist when some ordinary flower is taken in hand by him for the purposes of improvement. The modern exhibition Aster is as far removed from the original Chinese species as is the Dahlia of to-day from that of our grandfathers. The flowers—that is, good specimens of them—are no longer small and single; on the contrary, they are now large in size—a perfect mass of petals, and fine in form. This description applies alike to the flat-petalled kinds, whether reflexed or incurved, and to the quilled forms, good blooms of which are in shape and substance absolutely perfect. The Aster is a beautiful border flower, and it is also most useful for furnishing an abundance of cut bloom, a good mixture of the colours supplied by this plant alone making a charming nosegay; and last, though not least, it is a favourite exhibition flower. It is chiefly for the latter purpose that it has been divided into classes; and it is essential that they should be so divided, because of the divergent character that exists in the flowers of the flat-petalled and quilled kinds. In respect of elegance, the flat-petalled or French kinds are certainly the best; and of these the reflexed, or what are known among florists as the Victoria Aster, are decidedly to be preferred to all others. The incurved or well-known Peony-flowered Asters, having all the petals contracting inwards, leave an outer line that is certainly round but not at all graceful. The reflexed flowers, on the other hand, have a pretty tasselled appearance. The petals over-lap each other in regular order to the centre of the flower, which should be perfectly full and elevated, and this gives to the whole a finished and handsome appearance. At all exhibitions of good Asters now it will be found that the reflexed flowers stand to the incurved kind in the proportion of twenty to one, and the variety of colour and marking is also much greater. Good exhibition Aster blooms, if of the reflexed kind, should be from 3½ to 4 inches in diameter, and the petals evenly set all over the flower, the centre being perfectly full; such blooms as these, if there be variety of colour, will also invariably occupy a good place at exhibitions. The German or quilled Aster somewhat resembles the Hollyhock, in having an outer row of guard petals, but these scarcely protrude beyond the outline of the flower. The petals are all of the rolled or quilled form, and are set in so thickly all over the flower as to make it perfectly semi-circular in shape, and a firm-set bloom. Indeed, they look as though clipped over with scissors to ensure complete uniformity, and, although there are many pleasing colours and combinations of colours among them, the lack of elegance is too apparent ever to make this section generally popular. Some of the prettiest flowers are those which have a margin of some dark or rich colour with pure white centres. The Victoria Aster, now generally recognised as the best of the whole family, has a robust, branching, yet erect habit of growth, and if different coloured varieties are planted in a large mass they will produce a body of bloom that, for beauty and effect, cannot be excelled. Of course, they are not suitable as bedding plants, in the ordinary acceptance of the term; but, during the month in which they are at their best, they fairly put all other flowers into the shade. As a rule, the white is rather the tallest, and, therefore, most suitable for a back row for the centre of a bed, whilst one of the dwarfest—a charming lavender-coloured variety—might be well reserved for the outer row; then, with the rich purples, blues, reds, carmines, and other shades intermixed, a beautiful effect is obtained. There is, as regards the Aster, a prevailing prejudice in favour of imported seed over that which is home saved. Nothing could be worse founded than this, for the Aster, especially the quilled kind, has been greatly improved by English growers. I have grown my own Victorias, from seed that I have saved myself for the last four years, with the best results; and this year, having obtained from a well-known German grower a collection of twelve colours of his best Victorias, I grew them side by side with the former, and was delighted to find that my own kinds are, in all respects, better than the imported sorts. This is satisfactory, inasmuch as it shows that, by careful selection and with judicious seed saving, the Aster is just as amenable to the efforts of English cultivators as to those of Continental growers. In saving flowers for seed, or in selecting flowers for exhibition, I always thin out the blooms on each plant to four or five in number, the centre bloom being pinched out early in the season. Later on, small side flowers will be thrown out in abundance; but these should be cut for nosegays, for which, from their size, they are admirably fitted. Self-coloured Asters come very true from seed, but the striped kinds are uncertain, although good flowers will certainly result. If the plants are wanted for lifting into pots—and no flower will lift whilst in bloom more readily—they may carry all their flowers, four or five plants in a large pot making a fine head of bloom. To secure handsome Aster flowers, much depends on the treatment the plants receive whilst young. Seeds should be sown thinly in a soil-bed, or in pans or boxes, in a cool house, about the end of March, and, having plenty of light and air, will make fine robust plants by the beginning of May, when they should be lifted with care, and be planted out where they are to remain for the summer. To secure large flowers suitable for exhibition, the soil should have been previously well manured and deeply worked, drills being drawn with a hoe, about 2 feet apart; into these the young plants should be placed, allowing 12 inches from plant to plant in the rows; and, if dry weather then prevails, occasional soakings of water should be given. The Aster is a gross feeder, and, in addition to well-manured soil, rejoices in frequent applications of liquid manure during the summer. This is too often deferred until the blooms are expanding, but the future of the flower depends chiefly on the degree of robust growth attained by the plant whilst yet young. In addition, a mulching of long manure between the rows will assist materially in retaining the moisture that has thus been bestowed. All flowers selected for exhibition should be individually supported with small stakes, to keep them from being damaged by contact with others. A. D.

ALPINE SHRUBS.

By these are not meant mountain-side or hill shrubs, but the very dwarf woody inhabitants of the higher Alps—microscopic shrubs, indeed, they might be called, for some of them are not over 2 inches high; yet what a world of beauty and interest they present! There are the Alpine Andromedas, with numerous white flowers and diminutive stature, the Moss Andromeda, with its Lily of the Valley-like blossoms, borne on a fairy bush of wiry Moss, being the most delicate and rare; the graceful Linnæa, the small evergreen half-shrubby Alpine Speedwells, the very dwarf Alpine Willows, the Whortleberry, the Berberries, the very dwarf Rhododendrons, the Milkworts, the beautiful dwarf Menziesias, the creeping Azalea, the Partridge-berry, the May-flower of the woods of North America, the Arctic Diapensia, the Alpine Daphnes, the small Dogwoods (Cornus), and others, not, perhaps, so decidedly woody as these, but still fitted for association with them. There are, besides, many charming varieties of our own hardy Heaths, attractive from the same point of view, though growing somewhat stronger. All these give materials for the formation of what we may term the "Alpine shrubbery." A portion of the rock garden might be devoted to this very interesting group. The plants, for the most part, require pure sand and turfy peat, with plenty of moisture and pure air;

lumps of sandstone or grit-rock on the surface and in the soil will help to prevent evaporation. If the peat gets dry the plants will suffer immediately. Some think that a northern and shaded exposure is necessary to the health of some of the rarer and more fragile Alpine shrubs, but this is not so in these islands. It is the drought, not the sun, they suffer from, and with us drought is often severe enough. It is also customary not to take any precautions against it. Hence, the practice of placing some plants in shade which thrive much better fully exposed to the sun. It is much better to plant so that little or no artificial watering may be required. In the case of these Alpine shrubs, by forming a deep, rocky, and well-drained soil, by half burying or inserting pieces of rock in the surface, and, finally, by placing the young plants so that the whole surface where they are planted is covered with their greenery, except the jutting points of rock here and there, it is possible to do without artificial watering, except in very severe and prolonged droughts. The plants and the surface rocks give that protection to the soil which is given in their native homes by the close turf of the high mountains. To plant such subjects here and there on bare soil, constantly losing its moisture from exposure to the sun, is to run the risk of quickly losing them; though, in favourable soils and moist or elevated districts, some of them will endure even this treatment. R.

SUPPLEMENTARY NOTES ON YUCCAS.

Since I wrote the paper on this genus, which appeared in The Garden (see p. 129), I have had an opportunity of consulting Dr. Engelmann's memoir, and I am now able to correct one or two errors respecting the distribution of certain species. These corrections are of importance, because they give much fuller information relative to the hardiness of the species in question. Under Y. filamentosa, I stated that this species is probably the hardiest of the genus, growing further north than any of its congeners; and, in the introductory portion, 35° north latitude, is given as the extreme northern limit of Yuccas. On the authority of Engelmann, Y. filamentosa occurs as far north as 38°, and even this point is passed by the allied species Y. angustifolia. This is an inland species, inhabiting the plains of Colorado, Missouri, Iowa, &c., up to 44° or 45° north latitude; and, as Dr. Engelmann observes, must be the hardiest species of the genus. In that latitude, the winters are much colder than anything we experience, while the summers are hotter; and the annual amount of heat is nearly the same in the two countries. This confirms what Mr. Ellacombe says respecting the hardiness of this species, and Mr. M'Nab's report of its blooming at Edinburgh. Yucca alba-spica, mentioned by Mr. Ellacombe (see p. 147) was only known to me by name. I remembered having seen a figure of it somewhere, though I could not recollect where; but, the other day, on turning over a volume of the "Flore des Serres," I accidentally came upon it. Respecting this species or variety, the editor of that journal says:—"For a long time we have grown an exceedingly elegant species of Yucca under the above appellation (alba-spica). It is remarkable for the texture of its leaves, and the abundance of its slender marginal threads of snowy whiteness." The plant represented in the figure has a distinct stout trunk, constricted in the middle, and swollen near the base of the leaves. Engelmann, under some misapprehension, states that it is probably a form of Y. aloifolia. Possibly it may be the same as one of the half-dozen caulescent forms of this section described by Mr. Baker. In Regel's "Gartenflora" there is a figure (plate 580) of a form which he identifies with the Y. obliqua of Haworth. The latter writer has so imperfectly characterised his species, that Engelmann and others have given them up in despair. Regel's plant appears to be a miniature form of Y. gloriosa. It has smaller lighter-coloured flowers than the latter, and recurved leaves, approaching in this respect Y. recurvifolia. I may also take this opportunity of speaking more favourably of Y. flaccida, which I now think is second to none of the filamentosa set. Perhaps Mr. Ellacombe may be able to inform the readers of The Garden what Y. stenophylla of English and Continental nursery catalogues is. W. B. Hemsley.

NOTES OF THE WEEK.

—— Venus's Fly Trap (Dionæa muscipula) has made luxuriant growth this season, plunged out of doors, at Messrs. Rollisson's, in Sphagnum Moss, in a frame from which the lights have been removed. This plant, in common with many other marsh plants, such as Cephalotus and Sarracenia, is frequently considered difficult to cultivate, but, when grown out of doors, in a cool shady situation, in summer, it is found to succeed better than when confined under glass.

—— An interesting feature recently added to Alexandra Park is a span-roofed conservatory wholly filled with succulent plants, duplicates from Mr. Peacock's collection at Hammersmith. In this collection there are some fine specimen Agaves, Aloes, and Cacti, one of the most remarkable among the latter being a very large example of the Tooth-pick Cactus.

—— It is proposed to get together an exhibition of cones in connection with the Fungus Show, which is to take place at South Kensington, in October next. All having collections of cones would, therefore, be doing good service by contributing to this exhibition, which, if well supported, cannot fail to be both interesting and instructive.

—— One of the finest specimens of the well-known Mandevilla suaveolens which we have ever seen now covers the roof of one of the plant-stoves at Luton Hoo Park. It is bearing hundreds of white Dipladenia-like blossoms, which, although short-lived when cut, are very persistent in a moist atmosphere such as that of a stove, and so fragrant as to well deserve the appellation of Chili Jesamine, a name sometimes given to this plant.

—— We learn that at the Cologne Exhibition Messrs. Veitch & Sons were awarded the Emperor's prize for the fine group of plants which they showed there. The prize consists of a splendid porcelain service, richly painted with views of the Rhine, and is valued at seventy guineas.

—— The common purple Clematis Jackmani is now very beautiful on the rockery at Battersea Park, and a wire fence in the Royal Horticultural Gardens at South Kensington is completely hidden by its fresh green foliage and rich purple flowers. We have also seen this Clematis used in window-boxes with marked success; and, as a free-flowering late summer and autumn-flowering climber or trailer, it is unequalled among plants of the same colour.

—— The International Potato show, to be held in the Alexandra Palace, Muswell Hill, September 29th and 30th, will be supported by Continental and American, as well as British, exhibitors. The prizes amount to upwards of £100. As entries close on the 20th, intending exhibitors are advised to apply at once for forms and schedules to Mr. Peter McKinlay, 23, Upper Thames Street.

—— The Royal Horticultural Society's provincial show next year is, we hear to be held in Liverpool, on or about the 27th of June. The dates fixed for the other shows are:—Spring show, March 15th; first summer show, June 7th and 8th; second summer show, July 19th and 20th; autumn show, November 8th. By means of a loan, the Society has just paid this year's prize-money, and it is stated that the amount due in 1874 will also shortly be paid.

—— The Stamford Horticultural Show, which is to take place on Wednesday and Thursday next, promises to be an unusually successful one. No fewer than fifteen silver cups and £340 in money are offered in prizes. The exhibition which is to be held in the beautiful grounds attached to Burghley House will take place at the same time, and in connection with the Stamford Agricultural Show, the aggregate value of the prizes to be awarded at both exhibtions amounting to £2,000.

—— Beautiful specimens of Lord Suffield, one of the best kitchen Apples in existence, have been sent to us from Kidderminster, by Dr. Roden. They are stated to have been gathered from small bushes on the Paradise stock, three years old from the graft, and are so prolific that they even bear on the first year's graft itself, if allowed to do so. Some of these large Apples vary from six to nine in a cluster, even on the small bush trees just alluded to. They keep good from July to December, when they are worthily succeeded by Cox's Pomona.

—— Among the rarer kinds of fruits now in Covent Garden are some Bananas, more perfectly ripe than we have ever before seen them in the market. Figs from the old monastic Fig orchards, near Worthing, are also abundant, and in excellent condition. Green-flesh Melons, too, from Lisbon and Cadiz, may now be obtained, as may also Smooth Cayenne, and other Pines from St. Michael. Imported Peaches, principally yellow-fleshed varieties, are now being sold in the streets at a half-penny each, but, as may be imagined, their quality is anything but good. They come principally from France, and in a few cases from America.

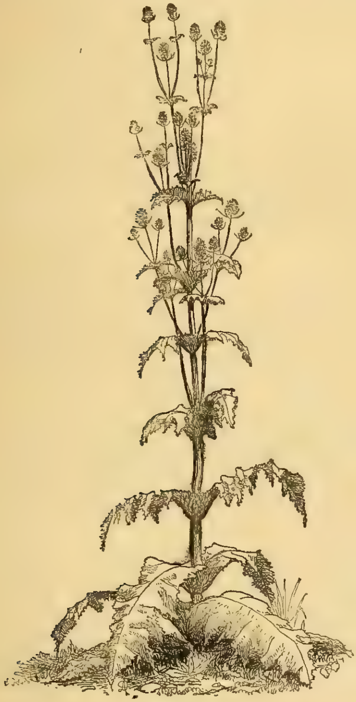
HYDE PARK AND KENSINGTON GARDENS.

The display of bedding and foliage plants here is decidedly better than that of last season. Among other changes made, one of the most important is the removal of the sub-tropical garden from the triangular plot of exposed turf on the left side of Albert Gate to the sheltered dell at the head of the Serpentine, and some very beautiful examples of carpet-bedding enliven the flower-walk bordering on Park Lane this year for the first time. Several judicious and very effective combinations of Palms, Dracænas, Aralias, Curculigo recurvata, and other graceful fine-foliaged plants, margined with dwarfer growing flowering plants, are this year introduced at intervals along the line of beds adjoining Park Lane, and these besides being strikingly attractive in themselves, serve to break the monotony which has characterised these straight lines of oblong beds in previous years. The semi-circular flower plot opposite the Ivy cottage, in Kensington gardens, is not so effective this year as it was last season, and this is principally owing to the preponderance of yellow and bronze-leaved Pelargoniums, while in some cases the Alternantheras are partly hidden by rows of Lobelia and Pyrethrum. Lobelias of the pumila section, are this year a failure everywhere, if we except L. pumila magnifica and the ruby-tinted L. Omen which have invariably done well. Two very attractive carpet beds were this season formed near the Albert Memorial and well deserve notice. These are planted with Coleus Verschaffeltii, Mesembryanthemum variegatum, Alternanthera amœna, Lobelia pumila and Golden Feather. These beds are edged with the hoary looking Antennaria tomentosa, which is planted close to the turf so that not an inch of soil is anywhere to be seen. A scroll bed in the private garden at Kensington Palace also deserves more than a passing notice. It is planted with dark velvety Coleus in the centre, to which the golden-leaved Abutilon is added with good effect and the deep tinted Coleus is set off by a narrow belt of Centaurea compacta, which surrounds it; next come lines and belts of Lobelia pumila grandiflora, Alternanthera amœna, golden Mesembryanthemum, Lobelia Omen and an edging of Echeveria secunda glauca. The oblong beds in front of the palace are very attractive, the compact and free flowering Lobelia Blue Stone, one of the best in its class, and an invaluable blue dwarf bedding plant, being here rendered very conspicuous, planted beside lines of Golden Chickweed and Mesembryanthemum cordifolium variegatum. The principal object of attraction here, however, is the long semi-circular bed which skirts the outer margin of the little lawn of the same shape. This is planted as a ribbon border at the sides, the centre being panelled with oblong spaces of tricolor and bronze Zonal Pelargoniums mixed with Purple King Verbena, and these spaces alternate with other oblong blocks planted with Coleus, Iresine or Centaurea ragusina and C. gymnocarpa alternately. This centre panelling is bordered on both sides alike with lines or belts of the following plants:—First, a row of Pelargonium Crystal Palace Gem, then Waltham Seedling, Stachys lanata, Pyrethrum Golden Feather, Lobelia pumila grandiflora, Alternanthera amœna, and Mesembryanthemum cordifolium variegatum as an edging.

Dracæna indivisa.

The ends of this bed are finished off with clumps of Dracæna australis, golden-speckled Abutilon, Dracænas, Acacia lophantha, Maize, and other graceful foliage plants, while some dwarf fan-leaved Palms are plunged in isolated positions on the turf with good effect. A pair of round beds here are planted with blocks of a large-flowered rosy-pink Pelargonium in the centre, surrounded by a belt of the golden-leaved dark bronze-zoned Perilla; then a belt of Cineraria maritima, followed by a line of the carmine-tinted Alternanthera amœna spectabilis. A semi-circular bed of Waltham Seedling, edged with lines of Queen of Queens, Golden Pyrethrum, Alternanthera paronychioides major, and the dwarf blue Lobelia pumila grandiflora, is very pretty, but the whole design lacks the richness of effect which rendered it so popular last season. The oblong beds by the side of Park Lane are, in many cases, very attractive, if we except those under the trees towards the Marble Arch. It is next to impossible for bedding-plants to do well under trees, where even the Grass has a struggle for existence. An exception must be made, however, in favour of a pair of circular beds of mixed Palms, Dracænas, and other foliage-plants, edged with lines of Pelargonium Queen of Queens, Alternathera paronychioides major, and golden Mesembryanthemum. A bed of Ageratum, also, seems to enjoy the partial shade, and is blooming freely. In one of the beds here we noticed Pelargonium Mrs. Turner, one of the best of the pink-flowered bedding varieties, while the vivid scarlet P. Mrs. L. George promises to be very useful. We next come upon an oblong bed of mixed sub-tropical plants, such as Fan Palms, Acacia lophantha, Ficus, Melianthus, Wigandias, Castor-oil plants, and Dracænas, which are associated together with excellent effect, and are margined with lines of a very free-flowering white Lobelia, Alternanthera magnifica, and Golden Feather. A pair of heart-shaped carpet beds here are nearly perfect in their way, the colours being well balanced, and the effect is considerably heightened by introducing a block of the fresh green Tagetes signata pumila between the blocks of crimson and orange-coloured Alternantheras. This plant is well adapted for bright green lines or blocks, if kept closely clipped, an operation which does not impair its freshness in the least. Here is another bed of sub-tropical plants; but this time the Palms, Curculigos, Dracænas, and variegated Indian Corn, rise gracefully above a dense carpet of the dark-leaved Perilla, which forms an excellent background for the lighter-foliaged and more graceful Palms and other sub-tropical plants. This arrangement is margined with lines of Pelargonium Golden Fleece, white Lobelias, Alternanthera paronychioides major, and Golden Pyrethrum. Another oblong bed, planted with a block of the rosy-lilac-tinted Pelargonium Amaranthe, is edged with lines of a free-flowering white Lobelia, Alternanthera paronychioides major, and the always-welcome Pyrethrum Golden Feather. Many of the double rows of large oblong beds on the strip of turf parallel with Park Lane are planted in blocks of one colour, Pelargoniums being principally employed. Among these are noticeable masses of Cleopatra (pink), Amaranthe (pink) Fire King (cerise), Culford Pink, and several scarlet varieties, edged with P. Albion Cliffs (a good clear white-margined variety, and a free grower), Iresine Lindeni, one of the freest and best of all purple-leaved bedding plants, and far brighter than Coleus; the whole margined with a double row of Sempervivum calcareum. Four heart-shaped carpet beds, bordering one of the cross paths here, are well worth notice. They are planted in duplicate and are very bright and distinct in colour. The central blocks are composed of crimson and orange-leaved Alternantheras, Veronica incana, and the deep toned Iresine Lindeni, on a soft golden carpet of Pyrethrum Golden Feather. This is surrounded by a belt of oblong panels, planted with the silvery Veronica incana and a purple-leaved form of the common Bugle alternately; next is a line of crimson Alternanthera, the whole being neatly finished off with the glaucous-leaved Echeveria secunda glauca. A bed of Pelargonium Blue Bell is bright and distinct, edged with a belt of the white-margined Albion Cliffs, then a row of Iresine Lindeni, the whole being finished off with a narrow belt of Pyrethrum Golden Feather. A very attractive pair of small heart-shaped beds are here planted with the orange-flowered Gazania splendens and the purple-leaved Iresine Lindeni mixed, the effect of which in bright weather is admirable. This is margined with Alyssum maritimum variegatum, then a line of Alternanthera, and an edging of Echeveria. This bed is well worth repeating on a larger scale another season. Another somewhat complicated, but effective, carpet bed is here planted in hexagonal compartments, or panels, of Agaves, Pachyphytums, Echeverias, and other succulent plants, on a carpet of crimson Alternanthera and blue Kleinia, surrounded by hexagonal rings of crimson, carmine, and orange-red Alternantheras, and Pyrethrum Golden Feather, the interstices being filled in with tufts of blue and purple Lobelia, on a carpet of Santolina incana and Tagetes signata pumila. These panels are very effectively margined by a broad belt of Golden Mesembryanthemum, outside which is another line of crimson Alternanthera, the whole being edged with a single row of Echeveria secunda glauca. The belt of golden variegated Mesembryanthemum is dotted with bold plants of Echeveria metallica; and these and the Agaves in the four central hexagons, effectually relieve the flat surface of the arrangement. Another oblong bed, planted with simliar materials, but without these Succulents, is far less effective. Beyond this last-named bed, and also on the right hand side, is another oblong group of the dark-leaved Perilla nankinensis, amongst which are interspersed taller plants of the golden-blotched Abutilon, pinnate-leaved Palms, and the elegant Dracæna australis. The Golden Abutilon stands out clear and bright from the background of Perilla, and the Palms add lightness to the arrangement. The margin consists of a belt of dark blue Lobelias, then a line of crimson Alternanthera, the whole being margined with Echeveria secunda glauca. This bed may be taken as a good example of the excellent effects to be obtained by a judicious combination of the so-called sub-tropical and bedding plants. Contrasted with flat masses of scarlet Pelargoniums and yellow Calceolarias on either side, this intermixture, and one or two others of a similar character, look like the productions of Titian or of Paul Veronese viewed side by side with the crude efforts of a sign-painter. Another bed here, edged with the same material, is planted in the centre with Pelargonium Lady Plymouth and Iresine Lindeni. Mixed and graceful Palms, Ficus, Aralias, Yucca quadricolor, and Albizzia lophantha, are added with really excellent effect. Pelargonium Mrs. Hetley, a dark zoned scarlet variety, is flowering freely in one of the oblong beds here, and promises to become very useful. Nothing but a poor sickly-looking effect can be expected in a bed in which the arrangement consists of yellow Calceolarias, edged with Pelargonium Albion Cliffs; then washed-out blue Lobelias, and an edge of Golden Feather. On the other hand, by employing the same edging material with a centre of pink Pelargonium Christine, an entirely opposite effect is produced. On the opposite side of the park, bordering on Rotten Row, are some pretty isolated beds, and a pair, consisting of a circular mass of Pelargonium Perilla, edged with Verbena Purple King, struck us as being simple but remarkably effective. The shrubbery borders here, too, are judiciously fringed with Ribbon Grass, Golden-leaved Elder and tall plants of Dipsacus Fullonum or D. perfoliatus Some oblong curved beds of tall Palms, Ficus, Dracænas, Solanums, Sonchus, Aralias, Abutilons, and other elegant foliage plants on a dark carpet of Coleus, and margined with a large-growing glaucous Echeveria, are very effective. A small circular bed of Cannas and the feathery-leaved Centaurea gymnocarpa, edged with crimson Alternanthera, is likewise pretty, as is also a mixed bed of scarlet and white-flowered Pelargoniums, edged with a golden-leaved variety, resembling Crystal Palace Gem. A circular mass of Rhubarb here has a fresh and striking appearance, and this forms a distinct and novel, but, at the same time, homely contrast to the brighter combinations of flowering plants. On the strip of undulating turf between Albert Gate and Hyde Park Corner we noticed a pair of very good beds of Erythrina, each branch a perfect wreath of coral-coloured flowers. These beds are edged with Lady Plymouth Pelargonium and Lobelia Purple King, a combination at once distinct and effective. Between these are some smaller masses of Orange Lilies, margined with the silvery-leaved form of Euonymus radicans. A pair of small heart-shaped beds of the robust, free-flowering, rosy-pink Pelargonium Mrs. Turner, surrounded by a line of Bijou, and edged with the dwarf and distinct rosy-purple Lobelia Omen, struck us as one of the brightest and best arrangements of its class which we have noted this season. In one of the oblong beds here a double row of the free-flowering, dwarf-growing Pelargonium brilliantissimum is very distinct and good; its flowers are of a vivid scarlet, and, as a dwarf golden-leaved edging plant, it seems worth notice. Some large beds of scarlet-flowered Zonals, bordered with a line of a silver-variegated variety, and edged with Lobelia Omen, are distinct and very brilliant. What a lovely little plant this last-named Lobelia is when contrasted with Pelargonium Bijou or the Golden Pyrethrum! Lilium auratum is blooming freely in company with the glowing scarlet L. chalcedonicum in the Rhododendron clumps, each flower standing out bright and clear like a great ivory star, backed by the deep-green foliage of Rhododendrons, Thujas, and other evergreens. Several large Yuccas here bear great spires of drooping wax-like bells, and some large specimens of Seaforthia elegans, Theophrasta imperialis and the glossy digitate-leaved Aralia pulchra are plunged in the strip of undulating turf with excellent effect. This strip is fringed by a row of dense-headed standard Acacias, and at the base of each of these Acacias is a small circular bed, planted very tastefully with Echeverias, Pachphytums, and other Succulents, margined with lines of crimson Alternantheras and Echeveria glauca. The Grass on the opposite or Knightsbridge side is mainly decorated with large Palms, Pandanads, Dracænas, and other foliage plants, two or three oblong beds being planted with Castor-oil plants, Cannas, &c., margined with flowering plants. The sheltered dell at the head of the Serpentine is this year judiciously planted with tall Dracænas, tree-Ferns, Musas, Aralias, and fan-leaved Palms, the stems of the large Poplar trees near the margin of the water being draped with tropical climbers, such as Monstera deliciosa and robust species of Anthurium. The margin of the stream itself is fringed with Osmunda regalis, large-growing glaucous-leaved Grasses, the buttress-like clumps of Ivy, and other evergreens, being employed as a background for the silvery-variegated Arundo donax and variegated Negundo, while the sloping strip of turf in the foreground is brightened by a few oblong and heart-shaped beds of flowering and foliage Pelargoniums and Verbenas. The common Reed (Arundo donax) might be utilised on the margins of this stream with advantage. A tall clump of Dracæna and Yuccas, in the centre of this glade or dell, completely spoils its appearance from an artistic point of view, by robbing the scene of that breadth and repose which might have been obtained by plunging the tallest plants in masses, on each side near the shrubbery margins, and judiciously isolating the larger and rarer kinds in the foreground. Some clumps of the Royal Osmunda are sprinkled along the margin of the moat or stream, but scarcely so effectively as one would like to see, since the main object in planting them seems to have been to block up the spaces between the clumps of Ivy—to form a fence of Osmunda in fact, instead of natural and beautiful masses of one of our noblest Ferns. The Royal Fern at home is one of the most noble of all

British plants, and, so far as we have seen, it has never been done justice to by either the painter or the landscape gardener. This Osmunda and Arundo donax should be naturalised beside the water margins of all our parks if possible; and surely it is possible, for in Mr. Dancer's market garden, at Fulham, it grows in noble masses 8 or 10 feet high every year. The feathery Tamarisk might bear them company, for it luxuriates best in moist turf, and is one of the most distinct of all hardy trees or shrubs, and the motion of its slender branches is as pleasing and graceful as its habit. Pelargoniums, Calceolarias, and Lobelias have, in many cases, made a lank and weedy growth with a paucity of flowers this season; and, as a rule, it is to the foliage plants and carpet bedding that we have had to look for the brightest display of colour. Carpet bedding has received much attention this year, and, as the season was so wet, it is well that this has been the case; for its good points are, that you can make sure of a display of bright colour in any pattern or design that an artist can draw, independent of the weather; your bed is, in fact, effective from the first day it is planted, and a drenching shower or two will not wash the colour out of it, as is the case with flowering plants such as Pelargoniums. F. W. B.



Dipsacus laciniatus.

The Giant Hemp (Cannabis gigantea).—I have this handsome-leaved annual just now in excellent condition. I planted it in the first week in June, when it was about 9 inches in height; it is now 10 feet high, and its lower branches spread between 5 and 6 feet, giving it a fine pyramidal form. For sub-tropical gardens I should think it would make one of the very best of plants. Seed of it sown in April, quickly germinates, and the young plants require to be pricked or potted off early, as, if that operation is neglected, they are liable to damp off.—R. H. B.

TREES AND SHRUBS.

TRANSPLANTING EVERGREENS.

Although no advocate for transplanting evergreens in the autumn, I have sometimes found it desirable to do so. Labour is generally more plentiful after harvest and during autumn than it is in the early spring months, and, on that account, it may be advantageous, and even necessary in some places, to commence the transplanting of evergreens at this season. Where this is the case, operations should be commenced at once, so as to give time for the mutilated roots to emit fresh rootlets before the soil loses its stored-up warmth and winter sets in. With deciduous trees the case is different. I noticed in your columns a short time since some remarks as to the successful removal of several deciduous trees in summer, but this only shows that with extra care and suitable appliances for moving large bodies of earth with them, transplantation may be accomplished, but it does not at all prove that it was the proper season in which to perform such operations. Before attempting to transplant deciduous trees and shrubs the leaves should either be off, or on the point of falling; otherwise, they are hastened off before the buds have become fully developed, and, with the contraction of bark that must necessarily take place by too early removal, the plant is sure to be stunted and crippled. But, to return to evergreens. Before undertaking their removal their condition as regards growth should be taken into consideration, and those that appear to have the most mature wood should be moved first. Young and immature wood is sure to flag, and in some cases, especially with the commoner varieties, such as Laurel and others, it will generally be found advantageous to remove such growth and otherwise lighten the head by cutting away a portion of the branches that cross each other or that are not necessary to make and furnish the plant. In the case of large shrubs, this may be done with considerable benefit; and, to ensure success, these should be operated on now. They should be well dug round and sufficiently near to disturb most of the large roots, when the trench may again be filled in and the removal of the plants deferred till the spring or following autumn. With choice specimens, such as variegated Hollies or Conifers, it is always better to treat them in this way than to run any risk by untimely removal. In all cases, the utmost care should be taken that every root is preserved, and that they are not barked or bruised in removing the soil. In lifting plants for immediate transplanting, secure as large a ball of earth as can possibly be removed by the means at disposal; and, if the plants operated on have to be carried any distance, or are likely from any cause to be kept long out of the ground, the roots should be well syringed, and the air kept from them by enveloping them in damp mats, or straw, or some other material. During the operation of planting the roots should be equally and regularly distributed round the plant, and, in filling in with fine soil, see that it is well washed amongst the roots, as, otherwise it often occurs that cavities in and under the ball of the plant remain unfilled, and it is only by using copious supplies of water that the soil can be properly carried into them. After a thorough watering, the whole should be left for a short time to settle and subside before finally filling in with dry soil, which should be done to the depth of 3 or 4 inches. This will prevent any incrustation or cracking of the soil that is sure to occur after watering, unless some such means are adopted to prevent it. To lessen evaporation and avoid the necessity of watering necessarily entailed by such a loss of moisture, the soil round the plant should be heavily mulched down as far round as it has been distributed. This may be done by using half-rotten straw, coarse Grass, or almost any kind of rubbish that may be at hand for the purpose. Protection of this kind not only keeps the roots uniformly moist, but it assists in preventing the escape of the stored-up warmth contained in the soil, thus encouraging speedy root action. After planting, each tree or shrub of any size should be neatly and properly supported by placing one or more stakes, according to the size and character of the plant and the situation it occupies. For Coniferæ and other tall-growing plants that are at all exposed to the winds, it will be found necessary to use three stakes, that should be placed in a triangular position, inclining sharply towards the stem of the plants, to which they should be secured, within a few feet of the top, for the purpose of effectually steadying them. To prevent any friction that may take place from destroying the bark, pieces of old matting, pads of hay, Moss, or some other soft material, should be placed between the tree and supports, where the whole should be firmly tied with strong tar cord, so as to keep all secure and steady. Fresh planted trees cannot be kept too steady, for, if allowed to blow to and fro at the mercy of the wind, it is impossible for them to become established, as it not only prevents them from making fresh roots but destroys such as are formed, or in the course of formation. In dressed grounds, where the appearance of large stakes placed triangularly, to afford the desired support, would be objectionable, they may be dispensed with by using pieces of stout galvanised wire attached to strong Oak pegs. Cuttings of most kinds of evergreens should now be planted. Select a well sheltered and partially-shaded spot in which to make the beds, and, in taking off the cuttings of whatever kind, see that the young growth is thoroughly ripe and hard, otherwise the cuttings will shrivel, and failure is sure to follow. Any varieties that are best propagated by layers should be treated in that way, and, in layering the branches, give a slight twist to induce the formation of roots. The more delicate kinds to be propagated by cuttings, such as the many beautiful varieties of Chamæceparis, Gold and Silver Yews, and plants of that class should be inserted in sandy soil under hand-lights in a shady border, where they will be found to root freely. Small lateral branches of most of the above slipped off with a heel are, perhaps, preferable to cuttings; and that gorgeous spring-flowering shrub, the old double Gorse, roots readily when taken off in this way. J. Sheppard.

NORTH AMERICAN MAPLES.

Maples are very justly considered to be among the most valuable and ornamental of forest trees. They are natives of north temperate latitudes, none being found in countries south of the equator, nor in the torrid zone. They are confined to North America, Europe, and the temperate parts of Asia. The Maples of America furnish a very interesting variety to which the lovers of good trees would do well to give more attention. The North American Maples are divided, as to range, into, first, the Maples of the eastern portion of the Continent; and, second, those of the Rocky Mountain region and the western coast. The eastern species are five and the western four.

1. **The Hard or Sugar Maple** (Acer saccharinum).—This has its home principally in Canada, New York, and the New England States, sparingly following the Alleghany Mountains as far as Georgia, and west of the Alleghanies occurring on many of the tributaries of the Mississippi. It is one of the largest American trees, attaining a height of 50 to 80 feet. The sugar-yielding nature of its sap is well known. Its wood for many purposes of manufacture and for fuel is unequalled. When grown in open ground, it forms a broad-based, round-topped head of dense, dark foliage, clean and usually free from insect depredations, and, taken all in all, probably stands at the head of American ornamental trees, at least for the Northern States. It is of slow growth, and requires care in transplanting until it becomes well established, after which it will richly repay all the labour bestowed upon it. There is a variety of this species, called Black Maple, said to be so called from a darker colour of the foliage, which differs slightly in the form and pubescence of the leaves, but not sufficiently to constitute a distinct species.

2. **The White or Silver-leaved Maple** (Acer dasycarpum).—This tree is found generally at lower altitudes than the Sugar Maple. It occurs on the borders of rivers, rather sparingly in the New England States, more frequently in the southern and western districts. It forms rather a low trunk, which divides into a great many long branches, with a very graceful spreading habit. In favourable situations it attains a large size. The under surface of the leaves is of a pale silvery-white colour, and contrasts beautifully with the rich green of the upper surface, especially when tossed by the breeze. It blooms profusely early in the spring, before the appearance of the leaves, and its large, broad-winged fruit ripens and drops when the leaves are fully developed. It is easily cultivated and grows rapidly, and hence is one of the most popular shade trees. It is, however, liable to some objections; the long, slender growth of the limbs renders them liable to be broken by storms and by snow and sleet in the winter, and in some districts a borer has caused great loss by injuries to the trunk.

3. **The Red or Soft Maple** (Acer rubrum).—This has a somewhat wider range of growth than, perhaps, any other species, being found from Maine to Louisiana. It grows in low, rich soil; and on the swampy borders of the large rivers of the South and West it is especially flourishing, attaining a great size. Although less vigorous on high lands, it yet maintains a healthy growth. It does not grow as rapidly as the Silver Maple, but the wood is harder and finer-grained, and the form of the tree closer and more compact. The twigs and flowers are of a deep red colour. It flowers and matures its seeds in early spring; they are only about half as large as those of the White Maple, and ripen at about the same time. The leaves are smaller and less divided than those of the white, and, like them, are silvery or whitish on the under surface. As an ornamental tree, it will probably be found more durable and satisfactory than the Silver-leaved Maple.

4. **The Striped Maple or Moose-wood** (Acer pennsylvanicum).—This is a small tree, seldom attaining a height of 20 feet, but is well adapted for planting in yards and shubberies. Its native situation is in mountainous districts, particularly New England, New York, and in the Alleghanies to Georgia. The bark is smooth and light green, mingled with longitudinal blackish stripes. The leaves are large for the size of the tree, with a rounded or heart-shaped base, and spreading into three nearly equal short lobes. The fruit hangs in loose and graceful clusters, and, like that of the Sugar Maple, is not ripe until autumn.

5. **The Mountain Maple** (Acer spicatum).—This species has much the same range of growth as the preceding. It is a smaller tree, seldom attaining a height of over 8 or 10 feet, being of a bushy habit. The leaves are similar in form to those of the Striped Maple, but smaller and more coarsely toothed on the margin. The tree or shrub is quite ornamental and deserving of cultivation. It becomes more vigorous and grows larger when grafted on the larger species.

6. **The Rocky Mountain or Currant Maple** (Acer glabrum, Torr., Acer tripartitum, Nutt.).—This is a small bushy Maple, growing from 4 to 10 feet high, first occurring in the mountains of Colorado, thence extending southward to New Mexico and Arizona, and westward to Nevada and California. It has small, smooth, roundish, three-lobed or three-parted leaves, somewhat resembling those of a Currant. It generally produces an abundance of fruit, which is about the size of that of the Red Maple. It would make a very ornamental shrub, and is deserving of cultivation.

7. **The Large-toothed Maple** (Acer grandidentatum).—This species is found in the mountains of Nevada, thence extending northward to Oregon. It is a small tree, of slim growth, commonly 20 feet high, but sometimes attaining a height of 30 or 40 feet, and 1 foot diameter of trunk. The leaves are similar in shape to those of the Hard Maple, but smaller and usually somewhat downy even when old. The fruit is of medium size, with broad and somewhat spreading wings.

8. **The Round-leaved Maple** (Acer circinatum).—This tree is common in the forests of Oregon and Northern California. It has not the upright growth of other Maples, but grows in clumps, several trunks springing from one root, and spreading out in a broad curve, the long, slender branches often arching to the ground, where they take root, and form tangled clumps which offer serious impediment to travellers in the woods in which they occur. It seldom attains a greater diameter of trunk than 5 or 6 inches, and a height of from 15 to 40 feet. The wood is hard, heavy, and fine-grained. The leaves have about seven principal ribs, spreading out fan-like from the base to the circumference, united together more than half way, and terminating in about seven narrow lobes.

9. **The Great-leaved Maple** (Acer macrophyllum).—This is a native of California and Oregon. In the latter state it appears to attain its greatest magnitude, reaching, according to Nuttall, a height of from 50 to 90 feet, and a circumference of trunk of 8 to 16 feet. Like the Sugar Maple, it abounds in a sugary sap, which, however, has not been utilised. Its wood is close-grained, hard, and shows freely those peculiar undulations of the grain which are called Curled and Bird's-eye Maple. The leaves are large, not unfrequently a foot long, and deeply palmately five-lobed. The flowers are rather conspicuous, of a yellowish colour, in drooping racemes, and somewhat fragrant. When in bloom it presents a very attractive appearance. The fruit or seed-carpels are larger than those of any other American Maple, and are covered even when ripe with strong, stiff hairs, and hang late upon the tree in conspicuous drooping racemes.—George Vasey, in "Department of Agriculture Report."

THE FLOWER GARDEN.

GARDEN VEGETATION FOR AUGUST.

The month of August at Edinburgh has been very agreeable, the temperature having been neither too hot nor too cold. A few genial showers fell at intervals, but there has been no continuance of heavy rains so much complained of in many districts of Scotland. The soil immediately under the surface is very dry, which is causing the leaves of the Rhododendrons to droop freely, and those of many trees to fall, perhaps more so than is generally observed at the present time. The six lowest thermometer readings during the month were on the mornings of the 1st, 2nd, 4th, 5th, 20th, and 28th, when 47°, 42°, 47°, 42°, 43°, and 45° were respectively indicated; while the six highest morning readings were on the 3rd, 13th, 15th, 16th, 17th, and 22nd—55°, 54°, 56°, 59°, 59°, and 58° being registered on those dates. Foliage of every description has this year been well developed, more particularly in those districts where the soil is of a moist character. This is very noticeable with the Sycamore trees, the foliage being unusually massy and luxuriant. Autumn tints are beginning to show on the Lime tree, Sugar Maple, Birch, Constantinople Hazel, Laburnum, Amelanchier vulgaris, some of the Locust trees, and the Siberian Pea tree (Robinia Caragana var. inermis), the early ripening being caused more by drought than from an advanced state of the season. The trees and shrubs now most attractive, so far as free fruiting is concerned, are the Siberian Crab, red and yellow-berried Mountain Ash, red and black-fruited Elder, Hawthorns, Snowberry, Berberis vulgaris, Mahonia Aquifolium, Ribes sanguineum, Cotoneaster microphylla, and Prunus lusitanica. Many of the variegated and coloured-leaved trees at this season of the year are telling well against the ordinary dark-coloured foliaged trees, such as the variegated Acer Negundo, the copper-coloured Hazel and Oak, and the Purple Beech. The beautiful golden foliage of the Quercus concordia is also very conspicuous, as well as the variegated Turkey Oak, and variegated and golden-leaved Elder. During the month of August, the Acer colchicum was particularly attractive, the points of all the branches being now covered with red leaves, which produce a rich and glowing effect in places where they are growing. Flowering trees and shrubs were by no means so numerous as during some past months, the principal show of flowers at this season being kept up with herbaceous plants, of which a very large number, particularly of the Composite group, may be seen. Perhaps the most attractive shrubby plant during the month was the Canadian Elder (Sambucus canadensis). This exotic shrub is generally covered with very large heads of white flowers, frequently measuring from 3 to 4 feet in circumference. The Canadian Elder is rarely seen in cultivation. It must be propagated by cuttings, as it does not set fruit in this district of Scotland. We have also in flower the Ligustrum ovalifolium, Fuchsia Riccartoni, Escallonia rubra, Spiræa Douglasi, Spartium junceum, Colutea arborescens, Coronilla Emerus, Potentilla fruticosa, Rubus spectabilis, and R. nutkanus; also the double-flowering Rubus fruticosus, Hibiscus syriacus, Ceanothus of sorts; also Aster cabulicus, a beautiful suffruticose species from Cabul, with a dense head of small blue flowers. The Clematis Jackmani, a hardy shrubby climber, is also very fine at this season, as well as the Yuccas, particularly the Y. gloriosa and Y. Ellacombei. The latter is, perhaps, the most attractive, the outer surface of the petals being of a reddish-brown colour, and the inner surface a creamy white. Like the Y. gloriosa, flowering plants of Y. filamentosa and Y. flaccida are particularly plentiful this year. The Y. recurva and Y. glaucescens are both hardy; the former has not flowered, while the latter has a tendency to flower out of season. One strong plant showed bloom during mid-winter, and another in June, but neither heads were perfected. The Y. angustifolia is naturally an early-flowering species; for two years it has bloomed during the month of July. The flowers are produced on a single spike about 2 feet in height; the blooms, eighteen in number, are large and very open, and of a greenish-white colour; the leaves are upright and narrow, very much twisted, and have sharp points. The plants in the garden came direct from Mr. Buist, at Philadelphia. One plant has flowered two years in succession. The flowering specimen put up a sucker last year, and flowered again this year; the other plant has not yet flowered, but one sucker has been produced. This species is likely to remain scarce in cultivation, unless importations are soon made. At this season Tritoma Uvaria and Burchellii used to flower abundantly; but many of them got injured during the winter, and the flower-spikes are, on that account, comparatively few and rather weak. Flowering plants of Arundo conspicua are also few in number, owing to the quantity destroyed last winter; and flowering plants of the Pampas Grass (Gynerium argenteum) seem likely to be scarce from the same cause. The rock-garden is now covered with plants more or less in flower, 966, including duplicates, being in bloom; notwithstanding this, comparatively few species, not hitherto in flower this year, have bloomed during the month of August, as indicated by the falling off in the annexed list compared with that of the four previous months. Although fewer species have come into flower, many of the plants now in bloom remain for a much longer period than they do during the months of May, June, and July. At the present time (1st September) no fewer than 263 species and varieties, exclusive of duplicates, are in bloom, many species flowering for the second time. The most conspicuous, just now, are Acæna Novæ Zealandiæ, Androsace lanuginosa, Bellis rotundifolia cœrulea, Calluna vulgaris of sorts, Campanula floribunda, C. isophylla alba, C. turbinata Grievii, Colchicum autumnale (pink and white), C. speciosum, Cineraria alpina, Cyclamen hederæfolium, ciliaris, E. cinerea of sorts (the most conspicuous being Dabœcia polifolia alba, D. purpurea, and D. versicolor, Erica E. cinerea longispica), E. Lawsoniana, E. Mackayana, E. Tetralix, and E. Watsoni, Epilobium obcordatum, Erodium macradenum, Gaultheria procumbens, Gentiana asclepiadea alba, Linaria alpina, Lithospermum prostratum, Polygonum vaccinifolium, Pterocephalus Parnassii, Santolina chamæcyparissus, Sedum cyaneum, Symphyandra pendula, Thymus striatus, Veronica alpestris, and V. spicata corymbosa, also Yuccas of sorts.

Monstera deliciosa (see p. 214).

One of the chief features on the rock-garden at the present time are the hardy Heaths; perhaps the largest proportion of them flower during the months of August and September, with the exception of the Irish varieties of the E. hybernica breed, all very distinct, but allied to the E. mediterranea. The E. mediterranea is early-flowering, also the E. australis, E. arborea, and E. carnea. The other Irish varieties, such as the Erica Mackayana and E. vagans, are flowering now along with the general collection of hardy Heaths. The most interesting at the present time are the Calluna vulgaris Alporti and Hammondi, Erica cinerea alba, purpurea, and E. c. longispica, E. Tetralix alba, E. Mackayana,

E. Watsoni, and E. ciliaris. The Heaths on the rock-garden are kept in hemispherical masses, in consequence of being regularly clipped even when the flowering is past. Two or three plants put in together, of different colours but of the same species, are particularly interesting. This is very noticeable just now with the various colours of the Calluna vulgaris, kinds which naturally flower at the same period; also, with the varieties of Erica Tetralix and E. cinerea, the latter species proving the most interesting, appearing as if the different coloured spikes were produced from one root. The other species, owing to their denser habit, keep the colours separate, but in juxtaposition. Of ornamental fruiting plants on the rockery, the Pernettya candida is perhaps the most attractive, in consequence of its large and showy clusters of white and purple fruit. This is certainly a very interesting plant for rock-garden purposes, as well as the Gaultheria carnea, with its white fruit, and G. nummularifolia, with its dark fruit. Rosa pyrenaica, Nertera depressa, Smilacina racemosa, and Cotoneaster microphylla, are also conspicuous. The Podophyllum Emodi is still attractive with its crimson fruit, and has been so for many weeks. Subjoined is a list of plants as they came into bloom on the rock-garden during the past month:

Plants in Bloom in August, 1875.

1. Œnothera taraxifolia
2. Yucca Ellacombei
3. Achillea ægyptiaca
Helianthemum algarvense
Nierembergia rivularis
4. Adyseton argenteum
Chelone perfoliata
Potentilla splendens
5. Anemone vitifolia
Herniaria ciliata
Œnothera riparia
Parochætus communis
6. Potentilla dahurica
,, Tonguei
Spraguea umbellata
8. Calluna vulgaris Foxii
10. Colchicum autumnale, pink
11. Silene chloræfolia
12. Calluna vulgaris pygmæa
Colchicum autumnale album
Gentiana affinis
13. Eriogonum compositum
14. Calluna vulgaris Hammondii
Cyclamen hederæfolium
Sedum Ewersii
Statice Gmelini
15. Calluna vulgaris Alporti
Origanum pulchrum
16. Sheffieldia repens
18. Colchicum crociflorum
Sedum cordifolium
Veronica spicata corymbosa
20. Calluna vulgaris Serlii
Cineraria alpina
Colchicum autumnale pallidum
Erica Tetralix alba
Thymus carnosus
21. Œnothera triloba
22. Dianthus Atkinsonii
Erica cinerea longispica
23. Colchicum speciosum
Erica cinerea alba
25. Gnaphalium triplinervum
26. Colchicum variegatum
Potentilla glabra alba
27. Sedum Sieboldii
30. Potentilla aurea
Thymus mastichinus verus
31. Scabiosa Fischerii

Royal Botanic Gardens, Edinburgh. J. M'Nab.

LARKSPURS.

These are deserving of cultivation in every garden, large and small, from the cottager's to the peer's. The great variety of their heights, varying as they do, in this respect, from 1 to 6 feet high; the equally great variety of their shades of colour, from almost scarlet to pure white, from the palest and most chaste lavender up through every conceivable shade of blue to deep indigo; and the very considerable variety of size and form of their individual blooms, some of which are single, semi-double, and perfectly double, and set on spikes ranging from 1 to 6 feet in length, render them objects of great value as decorative border plants; and for cutting, either in immense spikes for some forms of decoration or in smaller lateral twigs for bouquets and vases, they are most useful. The combinations in which they can be placed in borders are numerous. Nothing can be more beautiful than a line of Delphinium formosum, with a line in front of it of some pale or white coloured Phlox; or, planted alternately in a line, the combination is very effective. I shall never forget the magnificent effect I once saw in Mr. Parker's nursery at Tooting, produced by a line of Delphiniums and Acer Negundo variegatum planted thus in a long line. A very effective way of showing off the charming shades of blue in the Delphinium is to plant it alternately in a line with the old and far too much neglected Gardener's Garter. When thus planted to back up a mixed border the effect of the Delphiniums and any light-foliaged or flowering plant is very charming. Delphiniums are, of course, perfectly hardy, and can be cultivated in any ordinary garden soil. They are propagated from cuttings detached from the stools when 6 inches high, or when the stools become large they can be lifted and divided like any ordinary herbaceous plant. The ground for them should be rich, open, and deep. When young plants are planted out in spring in soils where slugs abound the buds or crowns are apt to be devoured by them in winter; consequently it is well, under such circumstances, to lift them and lay them in for the winter in some sandy soil in the reserve ground, where they can be more conveniently seen to. This is only necessary until they form large and vigorous stools. It is well to lift them every two or three years and thoroughly work the ground, adding some leaf mould or dung, and then to re-plant them. This is best done about the time the crowns begin to move in early spring. In favourable seasons, if they are not allowed to seed, they generally throw up a second crop of flowers late in the season; and, the spikes being smaller and more twiggy, they are then most valuable for cutting as well as effective in the borders. There are now a great many varieties, and the following are among the most useful and effective:

Amabile.—Azure blue, changing to rosy-lilac; white and orange centre; height, 5 feet; spike, 18 inches, producing freely lateral flower-spikes on very strong stems; flowers single, very large.

Agamemnon.—Lavender-blue, suffused with rose; centre, white and orange; flowers, very large; 3 feet.

Argus.—Azure blue, striped and tipped with rose; double; densely placed on spikes; 3 feet.

Barlowii perfection.—Very rich indigo-blue and crimson; flowers, double, very large, densely placed on large spikes; 2 feet.

Beatsonii.—Violet, with reddish centre; flowers, very double, produced in great profusion; 2 feet.

Bicolor grandiflorum.—Light blue; white centre; 3½ feet.

C. Glyn.—Very bright blue; rosy-lilac and white centre; 3½ feet.

Celestial.—This is a grand variety, ultramarine blue, with velvety-brown centre; height, 5 feet, producing centre spikes 18 inches long, with numerous lateral spikes besides; flowers, large and closely set on spikes.

Coronet.—Dark blue, with purple and orange centre; good habit; 2 feet.

Formosum, and its varieties Belladonna and liliacium, are all most effective, and should be in every collection; 2 to 3 feet.

Gloire de St. Maude.—Brilliant blue; petals, suffused with crimson; flowers, extra large, produced in long branching spikes; 3 feet.

Grandiflorum plenum.—Rich dark shining blue; flowers, double, free; a continuous bloomer.

Hendersoni.—Brilliant blue; centre, white; flowers, large, borne in great profusion for months in succession; habit, neat; excellent variety for beds and lines; 2 feet.

Hermann Stenger.—Outer petals, bright violet-blue; centre petals, rosy-pink, large, very double; 4 feet.

Jules Bourgeois.—Cobalt blue, suffused with pink, orange and brown centre; stems, freely branched; 3½ feet.

Keteleeri.—A very distinct and beautiful variety, lavender-blue tinted with reddish-lilac; double; produced very freely on dense spikes; 3½ feet.

La Belle Alliance.—Violet-blue; white and orange centre; flowers very large; 4 feet.

Louis Figuier.—Rosy-violet and blue, large, semi-double; 3 feet.

Madame E. Geney.—Reddish-purple, tipped with blue; centre blue and white; 4 feet.

Madame Henry Jacotot.—Bright azure-blue, suffused with delicate pink; 4 feet.

Magnificum.—Very brilliant blue; white and orange centre; 4 feet.

M. le Bihan.—Outer petals bright blue, inner ones rosy-purple; flower-spikes 18 inches long, with many lateral spikes besides; flowers semi-double, set closely in the spikes like a Hyacinth; 3½ feet.

Nahamah.—Dark blue, suffused with bronzy-crimson; flowers large, produced in immense spikes; 3½ feet.

Nudicaule.—Light orange-red; compact habit, 1½ feet.

Prince of Wales.—Azure blue, with white centre, double; 4 feet.

Pulcherrimum.—Rich shining blue; orange and white centre; produced on spikes, 18 inches long.

Ranunculiflorum.—Rosy-lilac, broadly margined with cobalt blue, very double; produced on long branching spikes; 3½ feet.

Thiers.—Azure blue; centre, white; very double; 2 feet.

Numerous other varieties might be included, but all the foregoing are excellent, and anyone who will cultivate them well in mixed borders, or as back lines, will agree with me that scarcely any other class of hardy perennials will produce so effective a display for many weeks, from the middle of June onward for at least three months.—"The Gardener."

THE NEW LOBELIAS OF 1875.

As I have, during the summer now drawing to a close, continued the trials of the new varieties of Lobelia Erinus sent out this spring by some of our principal nurserymen, I think that some account of the conclusions I have come to as to their respective merits, after a careful inspection and comparison of half a dozen plants of each variety, may prove interesting to those of your readers who devote any portion of their attention to this pretty and ornamental class of plants. Of the eleven new varieties that have come under my notice this season, I received five from Messrs. E. G. Henderson, of the Wellington Nursery, St. John's Wood; these were named respectfully—Unique, Brilliant Improved, Defiance, New Colour, and White Queen; one from Mr. Turner, of Slough, named Duchess of Edinburgh; one from the Pine-apple Nursery Company, named pumila magnifica; one from Messrs. Dixon, of Hackney, named Nivosa; one from Messrs. Downie & Laird, of Edinburgh, named Lady Macdonald; and two others from nurserymen whose names I do not remember at present, named respectively Birch's Blue Queen and Rumsey's Compacta No. 1. Henderson's White Queen is of erect and compact habit of growth, but is a poor grower and a shy bloomer, with individually small pips, leaving much to be desired for a perfect white Lobelia. Dixon's Nivosa is a small, poor, and utterly worthless variety. Turner's Duchess of Edinburgh, to which a first-class certificate of merit was, I believe, granted by the floral committee of the Royal Horticultural Society when it was brought before it, grown in pots (a method of culture which, to my mind, can never give a really fair idea of the merits of any Lobelia), has, with me, proved also utterly worthless, being of weak and sickly habit of growth, and ceasing altogether to either bloom or grow at the end of the first month after being planted out; the individual pips also, even when produced, being miserably small and insignificant. Henderson's New Colour I consider also quite worthless, being, in fact, almost identical with Carter's Charity of last year, and an old purplish-pink variety sent out some years ago, I think, by the same firm, under the name of Advancer, and long ago discarded as not worth growing. Henderson's Unique I consider pale and worthless, and in no wise deserving of its pretentious appellation. To Henderson's Defiance the same remarks apply as to the last-named variety; it has nothing to recommend it. Henderson's Brilliant Improved, I consider a very fine variety, producing a continuous succession of flowers of medium size, and of an intense shade of blue; it is of a good compact habit of growth. Rumsey's Compacta No. 1, seems to me also a most desirable and valuable variety, being exceedingly compact and dwarf in habit of growth, and a continuous bloomer; colour, light blue. Birch's Blue Queen is also an exceedingly pretty and continuous blooming variety, of a dwarf and compact habit, covering the ground well, and producing flowers of a lovely deep shade of blue. The Pine-apple Nursery Company's pumila magnifica was exceedingly beautiful for the first two months of the season, being of compact, but considerably taller, habit of growth than either of the two last-named varieties, and the colour of its bloom being of a fine deep shade. It is, unfortunately, however, not sufficiently continuous in the production of its blooms, or it might otherwise be pronounced a first-class variety. For the early season, however, it is most decidedly an acquisition. Messrs. Downie & Laird's Lady Macdonald is one of the most beautiful Lobelias I have ever seen, being similar to the old and once much-admired L. Paxtoni, but with flowers at least twice the size of that variety. It is also of excellent constitution and free growth, without being in the least coarse or straggling; it is also very fairly continuous in the production of its blooms. This variety is somewhat difficult to propagate. I still consider Henderson's Lustrous the best Lobelia for general bedding purposes; Mazarine Gem, of the same firm, the most beautiful in colour; and Dixon's Nivosa the best white yet sent out.

Belgrove, Queenstown, Cork. W. E. Gumbleton.

Aralia canescens (japonica, Hort.). See p. 213.

THE CALCEOLARIA DISEASE.

I find that Calceolarias have suffered more during the present season from disease than they have done during any previous year, which is somewhat surprising considering the long-continued rains and sunless days that were experienced during the early part of the season, which was unusually congenial to the natural requirements of these plants, and tended to foster in them a luxuriance of growth which gave promise of a profuse display of blossom throughout the season. Up to the time when the blooms began to expand I had never seen the plants in better condition; but, just at that time, the disease unexpectedly manifested itself so virulently that within ten days whole beds were completely destroyed by it, and all, except C. amplexicaulis, which appeared better able to resist its attacks than the others, became more or less affected; mine, too, is no isolated case, as I hear complaints of the same character from all quarters, and have witnessed its ravages alike in high and low situations, and in light and heavy soils. Nor does fresh or newly-broken-up ground afford any security, so predisposed is the plant to the disease, which attacks it at the collar, and kills an inch or so of the stem, whilst both root and top are often fresh and healthy-looking. These are facts patent to most gardeners, and, perhaps, the best service we can render one another is to record individual experiences, with the view of discovering some preventive, which, whether the disease be the result of atmospheric or fungoid action, or purely constitutional, may be effective in obviating such wholesale destruction in future. Up to the present time, the most generous cultivation and varied expedients have wholly failed to check its progress; nevertheless, there are not wanting those who ignore the existence of disease in the Calceolaria altogether, and attribute its failure entirely to unskilful cultivation, such as pot-bound plants, "coddling," improper soil, &c. With such opinions I cannot agree; although bad treatment would doubtless tend to induce enfeebled development. I have brought up my plants hardily, wintering them upon beds of soil under frames, and, after re-planting them in spring, planted them finally in beds, with large balls. I have watered them well, and mulched with well-rotted manure, and, after giving every attention to their after-treatment, the disease has not been in the slightest degree retarded. I am, therefore, persuaded that unskilful cultivation is not the primary cause of the failure. Years ago, when disease was unknown amongst Calceolarias, I have received hampers of plants, without any re-planting in spring, but merely lifted from the beds as they were inserted an inch apart, and, after a long journey in May, simply planted at once in the beds which they were to occupy, and all have done well without manifesting the slightest symptoms of ill health. I mention this to show that there is but little connection between bad cultivation and the disease. In fact, I have frequently observed Calceolarias to be most severely attacked under the highest systems of culture; and all that is at present known respecting this mysterious disease is that the Calceolaria is liable to become attacked at a certain stage of development. The tissues become affected, and the plant consequently withers from sheer want of sustenance. It is, therefore, better in most cases to abandon their culture altogether, as, just when the general arrangement of the flower garden is at its best, gaps are apt to occur that cannot be filled up, and, what with golden-leaved Pelargoniums, Feverfew, and the many hues of yellow that exist in our border plants, we want at the most but a very limited use of yellow blooming plants. Among the latter the best is the Viola, which is more to be depended upon for continuation of bloom than the Calceolaria, whilst the Tagetes also offers several most effective shades; and, until some remedy has been discovered for the disease, which year after year robs us of our Calceolarias, it is almost better to discontinue the culture of the latter and place our reliance upon plants of a more trustworthy character. George Westland.

Witley Court.

Lychnis Senno striata.—This is very much superior to its associates L. fulgens and L. Haageana. It was in full bloom in July and ablaze with its superb blooms, which are over 2 inches in diameter, some of them being of a rich salmon colour and others of a darker shade of red. The plant itself is 2 feet in height. It produces a fair quantity of seed, which comes up freely if sown in a cold frame, and would probably do the same in the open ground. It is one of the few perennials that flower the first year, though it does not show what it really is till the third season. It is said to be a great favourite in the smaller gardens in Japan, whence it came. Can any of your readers inform me how its name originated?—G. F.

Lemon-scented Verbena (Aloysia citriodora).—This little shrub, favourite though it be, is seldom seen in good condition. When confined in a pot it has generally a sickly aspect, but when planted out it becomes a large bush or forms a handsome pillar plant. In the kitchen garden here, against a south wall, I have two plants of it that are 10 feet in height and at least 3 yards in width, and the quantities of spray which they yield for mixing with cut flowers is surprising. The only care which they require is protection from frost in winter, and to effect this they are usually un-nailed early in November; the branches are then tied into bundles and enveloped thickly in hay-bands; upon these is also put an outer covering of straw, which keeps all dry, their base being covered with coal ashes. When all danger from frost is over in spring the covering is removed, the branches are spread out, and as soon as growth commences all dead wood is removed, the main branches being re-fastened to the wall; they require no summer training, their young growth being continually cut off for the many purposes of decoration to which they are applied, and to which they are so well adapted.—J. Groom, *Henham Hall.*

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Variegated Jacob's Ladder (Polemonium cœruleum variegatum).—This has been one of our best plants for edgings to borders and beds this season, yet, singular to say, it is seldom used in that way in this part of Scotland. It is perfectly hardy, and may be propagated without trouble, though it strikes root but slowly.—B.

The Fruiting Duckweed (Nertera depressa).—This was the most effective plant in a collection of Alpines exhibited last week at a flower show in the south of Scotland; and, amongst the Duckweeds shown, the finest plant was one that had been grown in a cool condition, and that had been kept continually in a moist atmosphere.—R. P. B.

Tritoma Uvaria.—Two large beds of this plant in the Royal Horticultural Gardens, at Chiswick, are just now masses of brilliant scarlet flower spikes, which, when looked at from a distance, are most effective. For large beds, such as may be seen at the Crystal Palace, or for associating with clumps of Pampas Grass, this is one of the best of all autumn-blooming plants.—B.

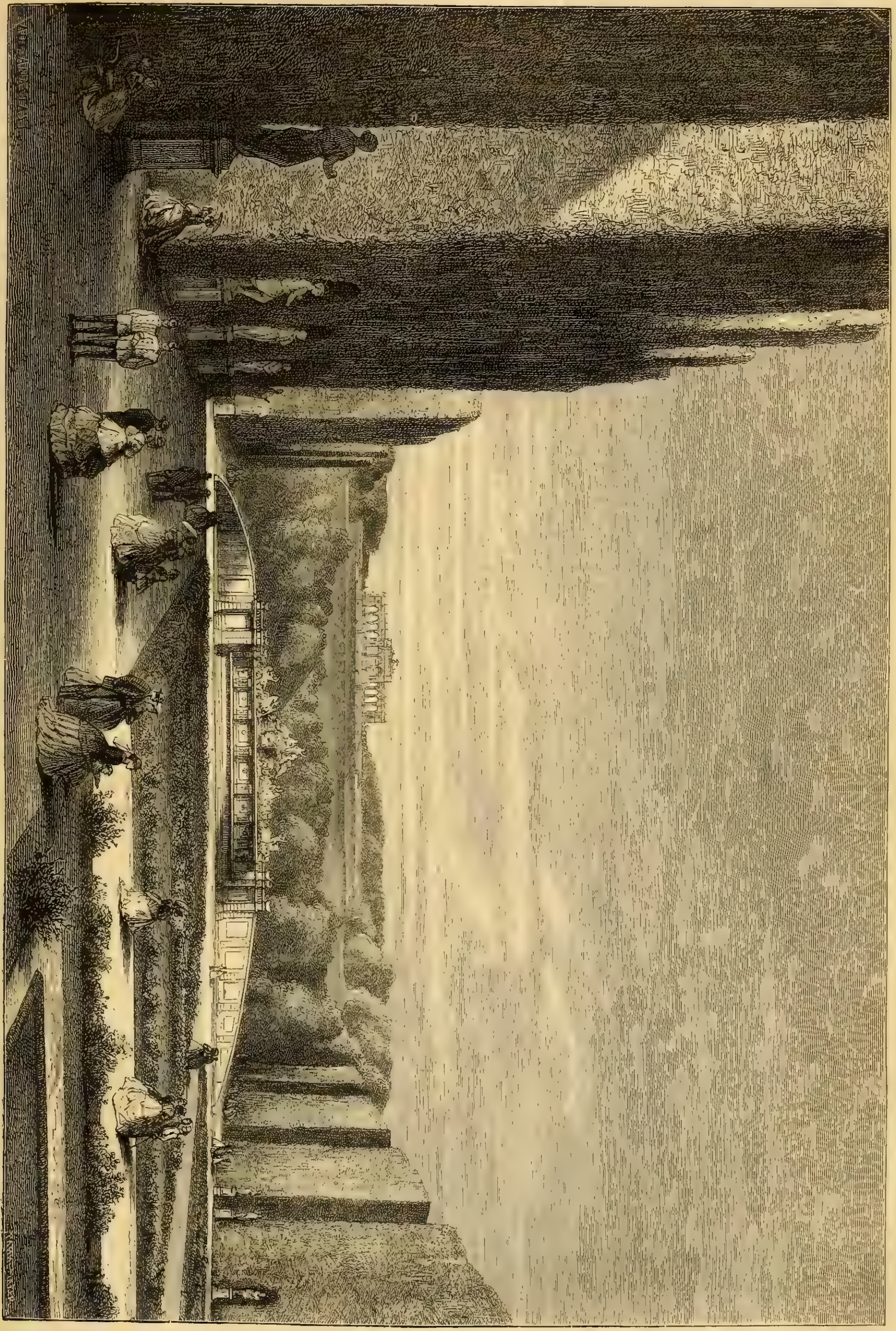
Finely-flowered Lilium auratum.—There may now be seen in the garden of Mr. G. A. Partridge, of Westgate Street, Bury St. Edmunds, a plant of this Lily, of which any cultivator may justly be proud. It bears no fewer than fifty spikes of bloom, and is considered to be the finest specimen of this plant which has been produced in this part of the country.—Peter Grieve, *Culford Hall.*

Campanula carpatica as a Bedding Plant.—I am of opinion that this Hairbell will prove to be a good bedding plant. Has anyone tried it in that way?—R. P. B.

THE IMPERIAL GARDENS OF SCHONBRUNN.

The creation of ornamental gardens in all parts of Europe, and, in fact, throughout the world, is becoming a matter of almost daily occurrence. Not only are private gardens, of great importance in an artistic point of view, being formed successfully or otherwise, but also public parks and gardens of great extent; and this is calling into requisition the highest talent at command in that department of horticultural art, but the call is not always responded to as successfully as might be desired. This arises, to a certain extent, from losing sight of the main and fundamental principles which should always govern this, as well as every other branch of decorative art, if success is to be achieved with anything like certainty. Many practitioners of landscape gardening, whether of the palatial or sylvan character, are led astray by partial and evanescent fashions. In palatial or semi-architectural gardening, for instance, the too frequent introduction of encaustic tiles and coloured gravels about terraces and elsewhere has been carried to excess; while, in sylvan, or pure landscape gardening, the planting of belts and masses of the "last new things" in the way of shrubs and trees is often practised to the exclusion of better-disposed plantations of trees and shrubs of well-known excellence, and to the neglect of proved trees in favourable positions, where they would have a chance of becoming, in due course, noble specimens of their respective kinds. Sometimes, too, the palatial style, with its balustrades, and statuary, and cropped trees, is very unskilfully treated. The simplicity and breadth of the best old gardens, both English and foreign, is, in short, not sufficiently studied. Most of these were created by great artists, who were not only sedulous students of the grandest effects capable of being produced by well selected trees, planted with a view to artistic effect, but they were frequently architects of high repute, and more or less skilled in sculpture. When decorative gardening was entrusted to such men, it is not at all surprising what masterpieces of various kinds were the result. The Royal and princely gardens of Continental Europe furnish models of the geometrical style, which cannot be over-rated. It is not desirable, nor would it be tolerated, that slavish copies or reproductions of these should be attempted; but the secret of the general grandeur of aspect and completeness of artistic composition, which they possess, should be carefully looked for, and, with diligent study, will generally be found. To the series of such models for study already published in The Garden, a portion of the gardens of the Château of Schönbrunn is now added. Cropped masses of trees serve as grand walls of verdure, in which niches are cut for statuary; and one of these artificial avenues, that represented in the illustration, leads to the beautiful spring Schöne Brunnen, from which the name of the original castle was derived. The spring is now enclosed in an elaborately-wrought marble framework, and the centre of the basin is decorated with statuary after the manner of Versailles. The gloriette, a temple displaying a fine colonnade, is seen in the distance rising above several lofty walls of foliage, in front of each of which are shrubs of lower stature, which are left to assume their natural growth; and the contrast between the trimmed and untrimmed forms is far from displeasing. The magnificent gardens attached to the Château Schönbrunn, from the great height of the vast walls of verdure above alluded to, the profusion of statuary, and other decorative objects, so placed as to produce the best possible effect, form grand models of the formal style of treatment; and are well worthy of the careful study and earnest attention of every practitioner of the art of decorative gardening on a large scale. H. N. H.

Primulas in the mixed border.—The Primulas which have done best with me in the open border are perhaps the following:—the double form of P. acaulis, in variety (the wild garden is full of the different coloured single ones, from deep reddish-purple to white); P. cortusoides, P. cortusoides amœna, and its lilac and white varieties; P. viscosa, and its relative P. nivalis; P. luteola, a tall handsome yellow Primula; P. involucrata, in a moist border; P. Muretiana, a pretty little purple one; and the handsome P. purpurea, at the foot of a large stone. I have also P. Munroi; but it is almost identical with P. involucrata. All these Primulas I have found thrive freely in the open border under a north wall.—Oxon.



VIEW IN THE IMPERIAL GARDENS, SCHONBRUNN.

THE FRUIT GARDEN.

LORD BUTE'S VINEYARD AT CASTLE COCH.

An account of the planting of this Vineyard, as an experiment in growing Grapes for wine-making, appeared about the middle of last month in The Garden (see p. 126). Since then, opinions adverse to the undertaking have been expressed condemning the climate of South Wales, and predicting that the experiment will prove a failure. One writer says—"The climate of South Wales has too little summer-heat to ripen the Grapes as thoroughly as is necessary for good wine," and "laments that the experiment has been instituted in such a locality." The other writer, in passing judgment on the Vineyard, says—"I cannot help saying that the scheme will end in complete failure in so murky and cold an atmosphere as that of Glamorgan." From these opinions I differ entirely. As to the Vale of Glamorgan, Carlyle says:—"It is pleasant and fruitful, kind to the native, and interesting to the visitor—a waving grassy region, cut with innumerable ragged lanes, dotted with ruinous castles and grey sleepy churches, with their Ivy and their daws—for Ivy everywhere abounds, and generally a rank fragrant vegetation clothes all things, hanging in rude many-coloured festoons, and fringed odoriferous tapestries, on your right and on your left, in every lane. It is a country kinder to the sluggard husbandman than any I have ever seen; for it lies all on limestone, needs no draining; the soil everywhere is of good depth, and of the finest quality, and will produce good crops with the most imperfect tilling." The 2,000 Vines planted (in the region thus described) on the 29th of March last, have broken well, considering the long journey which they had from France, and the time during which they were out of the ground. Most of them have grown to the top of the stakes, and they look strong and healthy; many of them showed two bunches of Grapes, which were taken off during the operation of tying. I feel quite satisfied with the progress they have made this season, so far as growth is concerned, and that is all I can say at present respecting them. I propagated 2,000 Vines this spring from eyes saved from the prunings. They are in robust health, about 3 feet high, and I purpose planting them this autumn, or probably next spring. I may here mention that, through some typographical error, the varieties of Grapes planted at Castle Coch were wrongly named. The black Grape used there is Gamais Noir, and the white one Le Miel Blanc. Mr. Fenn, of Woodstock, writing to me, the other day, says—"With myself there can be no question but that good home-made Grape wine can be manufactured in England now as well as in former times." a statement with which I entirely agree. Indeed, I purpose making a quantity of wine this season from Grapes grown on the castle wall here. The Vines which were planted some six or seven year ago are now bearing heavy crops of tolerably good-sized Grapes, which have ripened very well during the last two years. The portion of the wall on which they are growing is about a hundred yards in length. It is trellised with galvanised wire, fixed horizontally, for a height of more than 24 feet from the ground, and a great many of the Vines have grown to the top of the trellis, which is covered from top to bottom with branches and leaves. The variety principally grown is Royal Muscadine; but a great many others were planted, perhaps by way of experiment, or simply to cover the wall till the others (Royal Muscadine) grew larger. Among those were Black Hamburgh, Lady Downe's Seedling, Black Alicante, Mrs. Pince, and Trentham Black. Black Hamburgh fruits freely, but does not ripen well; and I may say the others have been failures, with the exception of Trentham Black, which fruits freely and ripens well. It has a strong constitution, and the leaves, which resemble some of the French sorts in texture, stand longer green, and look healthier than those of any of the others. The Vines are planted in raised beds, surrounded by a stone curb, some 2 feet above the ordinary ground level, and they have no great body of soil to grow in. Therefore they have to be often well-watered in dry weather during the summer. For this purpose, the water is laid on close to the border, which can be watered by a man with a hose in a short time. I planted a number of Chasselas de Fontainebleau on the wall here this spring, and I purpose planting a great many more when the operations connected with building the castle are finished. The Vine wall which is much higher than the part trellised, supports a corridor leading from the old to the new tower, and other parts of the castle. It faces the town, and has a fine appearance from the adjacent streets, covered as it is with Vines. The only treatment these Vines have received since planting is pruning in winter as soon as the leaves are all off, tying them in their proper places, and forking some manure into the border. The summer treatment consists chiefly in tying in the young shoots, and stopping laterals as they appear, removing a number of the branches, and thinning the berries in the bunches left for a crop, and watering according to the state of the weather.

A. Pettigrew.

Cardiff Castle.

THE NUT WEEVIL.

(BALANINUS NUCUM.)

The Hazel Nut crop often suffers severely from this small weevil; but, so far as our observation has gone, it has suffered less from it this season than usual. The insect is a handsome, fawn-coloured, pubescent beetle, with a most delicate, long, hair-like, curved beak, as shown in our engraving. This beak looks as if it were intended to allow the insect to feed on the inside of the Nuts, and no doubt it so uses it, but that is not its most important function. The mischief to the Nuts is done by the grubs, not by the perfect insects; it is they that make the wormy or worm-eaten Nuts so disappointing and distasteful to the youthful fruit consumer, and the snout is used for the purpose of allowing the egg to be placed inside the young Nut. At the end of this slender proboscis are a pair of minute jaws, with which the female easily pierces a tiny hole through the skin of the Nut while in its soft and tender state, about the end of May or beginning of June. In this she deposits an egg, and about eight days afterwards the young grub is hatched. It is white, without eyes or legs, but with very well-developed jaws, with which it gnaws away at the interior of the kernel until it is consumed. This occupies a considerable time, for it is very small at first, and as it grows so does the fruit; but, about the middle of August, it has reached its full development, and has eaten up all its provisions. It then sets to work to get out of the shell in which it has lived so long. It could not get out at the hole by which it came in as an egg; that is a great deal too small, and besides, by the growth of the fruit, it has become quite filled up; not, perhaps, wholly obliterated beyond detection, for, by the help of a lens, the tiny scar may, no doubt, be made out, but that is all. However, the grub's jaws are equal to the occasion. It begins work on the hard shell, and soon gnaws a small round hole in it; it is, however, not half the size of its body, and one would think it could never pass through it. There is nothing, indeed, to hinder its making the hole larger, if it chose; but it does not—it finds it sufficient. Its head can pass through, and, where this is the case, its body, being soft and compressible, can follow; it goes through like a leech. As soon as it has passed out, it makes its way, or allows itself to fall, to the ground, if the Nut is still attached to the tree; but when nearly consumed, the Nuts usually drop off, so that the grub has not far to seek the ground, into which it makes its way to pass through the chrysalis state. It then lies in a torpid state all through the winter, until the return of May, when it undergoes its change, and emerges as the perfect insect. It is to be observed, however, that, if we seek in the ground for them while so awaiting their metamorphosis, a hundred to one we shall not find them, although they may be in dozens in the soil we are examining. They do not go to their repose naked and bare, exposed to the evil effects of damp, or the still more dangerous onslaughts of prowling carnivorous insects; but Nature does not enclose them in a hard shining case, like the chrysalis of some moths; nor do they, like a moth, spin a silken cocoon from a glue supplied from the mouth by special glands—and yet they seem to be provided with something analogous to this glue. Whether from its mouth, or from the general surface of its body—probably the former—a copious flow of liquid exudes, to which the particles of earth around the grub adhere; and, as it keeps twisting and turning and moving about, it gradually becomes enveloped in a sort of earthen sheath, and, as the glue still flows, it is impacted on to the inner surface of the case thus formed, until it is like a smooth, hard, finely-plastered, impervious wall. Outside we see only little pellets of earth; but, if we crush these, we soon find that many of them are the cases in which the grub of this beetle is passing the winter previous to its transformation in the following spring. This transformation is achieved by degrees, its body gradually assuming the form of the perfect beetle. The glue which holds together the case seems not to melt in water, so that the insect is kept dry, however wet the weather may be. As the Nuts that are attacked by this weevil usually drop off a little before they would have been ripe, we are not so much exposed to the annoyance of cracking worm-eaten Nuts, as would otherwise be the case, but some still remain, and that is usually where only one or two worm-eaten Nuts are growing amongst a cluster of others that have not been attacked. During some years an immense amount of injury to the Nut crop is done by these insects. The female only places one egg in each Nut, so it is obvious that she must go over a great many to deposit all her store, and, of course, it is those that are nearest each other, and close at hand, that are selected by her. This explains why almost all the Nuts on one tree are sometimes wormy when those on another are left untouched. Of course, after the eggs have been laid, and the grubs are at work, nothing can be done by way of cure or prevention. We can do something, however, to diminish their number next year. If we seize the critical period when the worm-attacked Nuts are dropping from the tree, in August, and, before the grubs have come out of them, collect and burn them, we shall certainly reduce the numbers of the parent stock from which next year's progeny would have sprung. The male weevil is very like the female, only a little smaller and with a shorter snout; this possession of such a snout equally with the female shows that the sole purpose of that organ is not for getting access for the eggs to the Nuts. There are a number of different species of this genus very like each other, which attack different plants. One, common in England, attacks the Acorn, another the Cherry, and so on. A. M.

Nut Weevil (Balaninus nucum).

TRANSPLANTING FRUIT TREES.

There are few individuals engaged in gardening or other rural pursuits who need to be told that the proper season for planting deciduous trees and shrubs, including our hardy fruits, is from the time of the leaf-fall until that in which the buds are about to swell in spring. Yet from what we frequently see in practice, it would appear that comparatively little account is taken of the very great difference resulting from early autumn *versus* spring planting, more especially as regards fruit-trees. How often do we find—even where a system more in accordance with intelligent observation might have been expected—the planting or removal of fruit trees deferred until long after the commencement of the new year, very frequently till the buds have begun to swell! And yet, even in the case of small trees of the size usually procurable from the nurseries where their removal is thus delayed, they generally make so little growth the following summer that a season may be looked upon as lost, and frequently the effects of this late removal may be traced in the second year. If the trees to be transferred are large, and more especially if they have been long in the place whence they are to be removed, and are transplanted without any preparation in the shape of cutting-back the strongest roots the year previous, the consequences of late planting are generally such that many die outright, or linger for years in a debilitated, sickly condition making little growth, and each succeeding year are a prey to red-spider and other insect pests. By means of experiments made many years ago in root-pruning, at different periods of the dormant season, I saw fully the effects of cutting the roots of fruit trees that were in a strong-growing state, and that had been undisturbed for some years. Strong-growing young trees of the Bedfordshire Foundling and Alfriston Apples, when moderately root-pruned the first day in March, did not make shoots an inch long during the following summer, and were so weak as not to set a single fruit-bud. The next year they were a little better, but it was not until the fourth season that they formed fruit-buds in sufficient quantities. and every summer would have been devoured with red-spider, had they not been well syringed with a solution of Gishurst; whereas trees in a similar condition as to growth in every way, and alike operated upon early in September, formed numbers of bloom-buds the same autumn, and were completely studded with fruit-spurs the season after. This early root-pruning was proportionately more satisfactory than when carried out in winter between the times above mentioned. This, and subsequent practice of a similar character, convinced me that whatever has to be done that will in any way interfere with the roots of fruit trees, either by removal or root-pruning to induce fruitfulness, should be carried out early in the autumn. Since then I have transplanted quantities of Pears, Apples, Plums, Apricots, Peaches, Nectarines, and also large Gooseberry and Currant bushes as early in the autumn as the wood was fully ripe and just as the leaves began to show signs of falling, always with the best results. Apples and Pears that have been a dozen years planted without removal, if prepared a year before by cutting all the strong roots to within 4 ft. of the stem, and which are removed thus early, whilst there is yet time for them to make a little root, will frequently bear some fruit the following summer, and produce a full crop the ensuing year. If Peaches and Nectarines are removed with care and all their roots are, so far as possible, preserved, which can easily be done where they have not to be taken far, as in the case of a wall that may happen to become overcrowded with young trees that require thinning out—these if moved whilst yet retaining their leaves, and well watered, will often bear a fair amount of fruit the following season. Currants and Gooseberries, especially the latter, will bear plentifully the next summer, if moved early in the season, even if the trees are large, provided they are not old and beginning to wear out. I should strongly recommend all who have fruit trees to remove, or who are contemplating fresh plantations of young fruits, to at once set about preparing for them, as when the work is done early it is more satisfactory every way, inasmuch as there is more assurance of success, with less time to wait for a crop.—T. Baines, in the "Florist."

FRUIT TREES AS ORNAMENTS IN SMALL GARDENS.

Considering the beauty and profusion of the blossoms of such fruit trees as Apples, Pears, Plums, and Cherries, it seems strange that they are so seldom planted for their beauty chiefly. Take the Apple alone—what ornamental tree can match the infinite variety of colour and size of its blossoms? They exhibit such a profusion of vivid pinks as can hardly be found elsewhere in Nature. And what lovely rosettes the clustered masses make! One of the prettiest table decorations may be made with Apple blossom and foliage only. And there is the white bloom of Pears, Plums, and Cherries—one of the most lovely sights in Nature's full storehouse of beauty. The habits of the trees, the form, size, and colour of their leaves, and the beauty of their fruit, almost equal the beauty of their blossoms; yet, notwithstanding the highly ornamental character of fruit trees, we are constantly meeting with Planes, Sycamores, Laburnums, Thorns, Birches, Oaks, Hazels, and many other trees and shrubs, such as Lilacs, Guelder Roses, common Laurels, Syringas, &c., in small gardens, and hardly ever see a fruit tree. Only quite recently on entering a suburban garden in London the first trees met with were a number of Acacias, Sycamores, Limes, and Thorns, that formed a blind at the extremity of a garden—to shut out what? Only an Apple orchard in glorious blossom. It seemed to be the height of folly, and the advice was given to clear out the stunted bushes and trees at once and fill in with some pyramidal fruit trees, as a foreground to the orchard of taller trees. No object can be more effective than pyramidal fruit trees. The pyramid, like the circle, seems complete in itself, satisfying the eye by its perfect symmetry and exhibiting a form that never tires. Lines, again of cordons in small gardens light up the sides of walks with a glow of beauty, and by placing the blossoms below the eye, set them in quite a new light. The exquisite rosettes of Apple blossoms running round a garden in single file on cordons are very pretty. But trees of a more natural character are equally effective and even more suitable in the belts or borders that so generally form the boundaries of small gardens. The persistent attempts made to shut out our neighbours' gardens or grounds, and shut ourselves in, often narrow the area of beauty and curtail the pleasure of both. A few groups of plants here and there to shut out really unsightly objects, would be much more effective than the everlasting lines or screens planted to secure privacy or freedom from observation, and which, as a rule, do neither, and convert hundreds of small gardens into dull, dark monotonous strips of ground, robbed of all cheerfulness and variety by the vain attempt to plant out the beauty of neighbouring gardens with common trees and shrubs. If blinds must be had, at least convert your screens into sources of beauty and utility by forming them of fruit trees and bushes, such as Apples, Pears, Plums, Cherries, Almonds, Peaches, Filberts, Gooseberries, and Currants. Even the latter, laden with their bunches of bright red coral-like fruit, are far more ornamental than many so-called ornamental shrubs and trees. D. T. Fish.

ARTIFICAL FERTILISATION OF MELONS.

I cultivate an early variety of Melon, a hybrid from the Black Rock, which is very good as an early fruiter, but its dark green colour is considered objectionable. I modified it by fertilising it with the Gross Prescott; the crossing gave me a variety with a light green rind, tolerably large, and of excellent quality. This is my method of operation. I sow my first Melons about December 20th, in order to have them ready by April 15th. Thirty-five days after sowing, the young plants have their leading shoots taken off, and are pricked out. The temperature of the hotbed is 22° to 28° (Reaumur). Their lateral branches develop four leaves, twenty-eight days after plantation. I then pinch them off to the third leaf; the fruit buds at the junction of the leaves now begin to shoot, and the first staminiferous and pistilliferous flowers appear above the second or third leaf. It is always necessary to leave one leaf above the fruit in order to forward its growth. I have just said that the temperature of the hotbed is from 22° to 28° (Reaumur); with this temperature, I give the Melon plants as much air as possible; this, however, depends on the state of the atmosphere. If the weather is cold, the lights are only slightly raised, and care is taken that the mats on the frame are arranged in such a manner as to exclude the cold. These measures, though very simple, are nevertheless of great importance in the cultivation of early Melons. When you examine the organisation of the Melon flower, you perceive that some have only stamens, others only pistils, while others, again, have both. The more complete organisation of these last seems to point to them as the most suitable flowers for reproduction; I select these specimens for artificial fertilisation. This is my method. I take a staminiferous flower, remove the corolla so that the stamens are at liberty, and pass them lightly over the stigmata of the flower I wish to cross until they are covered with pollen. If the operation has succeeded, the effect is soon apparent—the flower fades, and the ovary begins to enlarge. I must not omit to add that the pollen must be very dry, and the stigmata somewhat viscous. It happens that occasionally a female flower on which one has relied fails sometimes from malformation, or from some unknown cause. In order to assure myself of success, I visit my Melons daily, and fertilise all the flowers which are sufficiently advanced. When a number of Melons are formed and are about the size of an egg, I usually remove all but one on a root, and this one the fruit most likely to come to perfection. The effect of artificial fertilisation is, by profiting by the first flowers, to advance (sometimes by a fortnight, no matter what weather) the ripening of the crop. The above is the mode adopted in the artificial hybridisation of Melons by a correspondent (M. Ronè) of the "Revue Horticole." I have myself grown the Rock Melon, and can speak well of its productiveness and fine quality. It deserves to be more generally cultivated. W. N.

Water Supply to Fruit Trees in Houses.—From observations I have made I am led to think that the supply of water to fruit trees planted out in orchard-houses, &c., is frequently far below their requirements, and is the cause of many of the complaints we hear of buds dropping, trees gumming, and similar evils. When we take into consideration the liberal way in which Nature waters, the watering-pot appears but a mere toy. On the 14th ult. there fell here 3½ inches of rain, or about 350 tons per acre. Now, if we take, for example, a house, say 100 feet long by 10 feet wide, that one watering by Nature would amount to upwards of 1,800 gallons. And, if we take our yearly average at 30 inches, nearly 16,000 gallons would fall annually on a piece of ground the size of the house I have mentioned. This will probably surprise many, as it did me; but it is, I think, a fact which may be easily ascertained in a few minutes by anyone who chooses to take the trouble to do so.—D. Uphill, *Moreton, Dorchester.*

Denyers' Victoria Plum.—This is one of the most prolific and generally useful Plums grown, and it commences to fruit at an earlier age than almost any other kind. It does best grown as a low bush or espalier, as under such conditions the branches are more readily supported and the fruit thinned than when grown in the form of standards. If the tree is not overcropped the fruit swells to a large size and the stone is small. It is eminently fitted for kitchen use and for preserving, while grown on a wall it is also a handsome dessert Plum; for, although not so rich in flavour as the varieties usually grown on walls, it will be found to be an excellent substitute for them in seasons when they fail to produce a crop.—J. G.

Judging Grapes.—Will you kindly fix a standard by which Grapes ought to be judged. Is the following correct?—Size of bunch, 2 points; flavour, 2 points; colour, 2 points; size of berry, 1 point; bloom, 1 point. Total, 8 points.—W. Stone, *Lismore Castle, Waterford.* [In judging Grapes I always give the preference to large berries and good colour; where these two qualities are combined the flavour is sure to be good. In my case the points would, therefore, stand thus:—Size of berries, 3 points; colour, 2 points; size of bunch, 1 point; bloom, 1 point; flavour, 1 point. Total, 8 points. It is, however, difficult to fix a standard that will apply in all cases. Of course, large bunches, with large berries and good colour, would stand before smaller bunches; although, in other respects, they had equally good points. Therefore, Mr. Stone's standard is, so far, correct.—J. Powell, *Royal Gardens, Frogmore.*]

Wasps and Fruit.—Mr. Wildsmith states (see p. 185) that wasps are very plentiful this season. In this part of the country this is not the case; I do not believe that I have seen a dozen since midsummer. In spring they were to be seen in large numbers, and many were caught, which, no doubt, thinned them considerably; but I principally attribute their absence to the heavy rains last month having drowned them in their nests. Swallows made their appearance about the usual time and began to build, but almost immediately left, and have not been seen since. Slugs have been, and are, abundant. Caterpillars, last year, were on every Gooseberry and Cabbage leaf; this year there are none.—R. R., *Stradey, Carmarthenshire.*

Strawberry MacMahon.—Besides the Quatre Saisons Strawberry (see p. 190) there appears to be another excellent perpetual bearing variety of French origin which, judging from the account given of it by M. Oudin in the "Revue Horticole," should be grown in all gardens. It has been named the MacMahon, and was originally obtained by M. Mulié, of Neuville-en-Ferrain. It is said that it ripens with the early varieties, and continues to bear as long as even the latest kinds. The plant is dwarf, with upright rounded foliage of a deep green colour. The flowers, like the entire plant, are robust and invariably produce fruit, which ripens well, whatever the weather, or whatever the soil in which the plants are grown, may be. The fruit is of a bright red colour, large, and excellent in quality.—G.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Golden Hamburgh Grape.—In an ordinary Hamburgh-house, we find this to be one of our finest early autumn Grapes, both bunches and berries being always very large and of a beautiful rich golden colour.—G. J., *Wangford.*

Orchard-house Fruits.—Can any of your readers inform me how orchard-houses (without heat) are succeeding this season? With me, the crop of both Pears and Peaches is good. The former are swelling satisfactorily; but not so the Peaches, which are late and deficient in flavour; indeed, my orchard-houses are not answering my expectations. Any suggestions for treatment of the plants, which are all in pots (some sunk in the earth), or explanation why the flavour is so bad, would be a favour. We have had a very fine and warm season here, although not much sunshine.—W. H. M.

Bees and Fruit.—The rapacious manner in which bees seize upon all kinds of ripe fruit is certainly remarkable; and in no previous season have I known them to be so troublesome as they are this year. Even the smaller fruits, such as Warrington Gooseberries, though netted over, have been eaten off as they have ripened. In former years, we have had to contend with the depredations inflicted by hordes of hornets (which are usually plentiful here) and whole legions of wasps; but, with the exception of an occasional stranger, these have not appeared this season. Does the presence of wasps keep off the honey bee?—George Westland, *Witley Court.*

Wasps and Marie Louise Pears.—I find that wasps are this year, as usual, selecting the fruit of this Pear grown on pyramids in preference to that of the same kind on walls. Judges of fruit are too often influenced by external appearances; not so the wasps, which look for flavour only. On a wall, Marie Louise is one of the clearest-skinned Pears in cultivation; while on pyramids or cordons it is generally much russetted, which, to fastidious tastes, may be considered a blemish; but it is, nevertheless, a pretty correct guide as to first-class flavour in the case of Pears or Apples.—James Groom, *Henham.*

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Bedding Plants.—Presuming that cuttings of the tricolored varieties of Pelargoniums have, as already advised, been put in, it is now time to go on with the others, including the bronze sorts. For all these, 6-inch pots are the best; in them the cuttings, either before or after being struck, are not so liable to damp off as if in large pots or seed-pans, wherein is a greater body of soil. Drain the pots sufficiently, and fill them up with ordinary loam, to which has been added enough sand to make it open and porous. Put in each pot half a dozen cuttings; let these be made from the best matured shoots that have been fully exposed to the sun and light; these are much less liable to damp than such as are produced from the crowded centre of the plants and are soft and watery. It is not advisable, if it can be avoided, to take cuttings from the principal beds, as it would disfigure them before their beauty is over. A sufficient number of plants from which to cut should always be put out in the borders or the reserve ground. When the cuttings are made, allow them to remain on the potting bench for a day before putting in; this will make them less likely to rot. Do not give any water for a day or two after. Place the pots in the full sunshine, on a bed of ashes to exclude worms, in a place where a frame can be put over them on the first appearance of frost; but, at present, they will be better quite exposed. It may be necessary to remind amateurs that in preparing stock of these, as well as all other things that are increased from cuttings in the autumn, and have to be kept through the winter, considerably more should be struck than will be required, so as to allow for some dying off, which is certain to happen. Ageratums, Petunias, and Heliotropes should also be got in, as well as Lobelias; cuttings of the latter ought to be taken from the darkest-coloured, best habited plants. The practice of raising Lobelias from seed generally ends in disappointment, the produce usually being very inferior both in habit and colour. The cuttings of all these last-named plants should be put in 6-inch pots, and at once well-watered, never allowing them to flag in the least; a slight hot-bed will be necessary for them in which to plunge the pots, keeping the atmosphere moist and tolerably close. They must be shaded when the sun is bright. Continue to give plenty of air to Cinerarias, Primulas, and pot Mignonette, so as to keep them dwarf and bushy. Zonal Pelargoniums, that have been grown on for winter flowering, should be removed to frames or pits where they can receive plenty of light and air, but where there are the means of putting on the lights when there are any signs of frost.

Theophrasta imperialis (see p. 214).

Hyacinths, Tulips, Crocus, and Narcissus.—These should now be planted; it is not well to defer procuring them until the stocks are somewhat run through. Where any considerable quantity of forced flowers are required early, a good supply of Roman Hyacinths should be used. These are smaller than the ordinary type, but very handsome. They should at once be potted, putting five or six in a 7-inch pot. All the above varieties of bulbs ought to be potted as soon as they are obtained, as they will very shortly evince a disposition to grow, and the sooner they are in the soil, under these circumstances, the better. A few directions may be useful to those who have not had much to do with this class of plants. For Hyacinths 6-inch pots are the most convenient, and look the best. Ordinary loam, wherein is a moderate quantity of sand, leaf soil, and rotten dung, is the most suitable material in which to grow them. Put at the bottom of the pots half-an-inch of broken crocks; on this, place an inch of dry rotten dung, and fill up to within three-fourths of an inch of the rim, making the whole moderately firm; then take out of the centre as much of the soil as will allow three-fourths of the bulb going below the surface, pressing it firmly round on all sides. Narcissi require to be similarly dealt with. Three Tulips may go into each pot of the above size, placing the bulbs just below the surface. For Crocuses, half fill the pots with soil, pressing it firm; then put in half-a-dozen bulbs, and fill up with soil. The reason why Crocuses require to be potted deeper than the others is that each year they form a new corm, or bulb, on the top of the old one, the latter decaying; and, if there was not a sufficient depth of soil over them, this natural process could not occur. When all are potted, plunge them out of doors, as close as the pots will stand in a bed of coal-ashes, covering them with 6 inches of the same material; and here allow them to remain until they have made a good quantity of roots.

Potatoes.—Late crops should now be at once taken up, as after this time there is nothing gained by leaving them longer in the ground. Disease has been much arrested by the dry weather we have had, but should wet again set in it will, in all probability, extend further to any still remaining in the ground. Where considerable quantities are grown, it oftens becomes a difficult matter to find room for storing them without resorting to clamping; but, unless where unavoidable, this method of keeping them should never be practised, more especially in a season like the present, when disease has been so prevalent, rendering it necessary to go over them several times during the autumn to remove any that may be affected.

Planting Cabbages.—A good piece of ground, upon which to plant early Cabbages, should now be dug over. Those sown in July will, by this time, be large enough to plant out. It is not well to manure heavily at the time of preparing the ground; for, if much is put in for this crop, it has the effect of inducing over-luxuriant growth, which should be avoided. Although the Cabbage is very hardy, yet, if the plants are forced into rank growth, they are often cut off in severe winters; consequently, it is better at this season to plant on soils that has been manured well for some previous crop. Ground where Onions have been grown, and which by this time will be cleared, will, if simply dug over, answer all purposes. In planting at this season some distinction should be made in the different kinds; small-growing sorts, such as the Cocoa Nut, may be put in 9 inches apart in the rows with intervals of 2 feet between the rows. In the spring, as soon as they are at all fit for use, every other one can be taken out, leaving the remainder to develop more fully. Larger kinds, like Enfield Market, should be put in a foot apart in the rows, in like manner taking out in the spring every alternate Cabbage; these larger growers should also have 2 feet between the rows. When putting them out use a little soot and lime to each plant; for, although this autumn-planted crop is not liable to suffer through clubbing in the way that the spring and summer plantings do, still these have the effect of keeping away slugs. In planting all the Brassica family, amateur gardeners are apt to err in either not putting them in sufficiently deep, or go to the other extreme of half burying the leaves. If the former mistake is made the wind blows them about in a way that does much mischief; and, if too deep they do not do well. Whatever size the plants are they should be planted so that the bottom leaves will be on a level with the surface; this does away with the necessity for making the ridges too high in hoeing up. If the land is moderately dry it is a good plan to make with the hoe shallow trenches, 5 or 6 inches deep, planting in the bottom of these. The advantage of this is, that a portion of the soil in the so-formed intervening ridges can be drawn to support the plants before winter, and the remainder, thus a little elevated, acts as a protection from cutting, frosty winds, and in the spring can be put to the plants, still leaving them nearly on a level with the surface, thus enabling the whole of the roots to receive fuller benefit from rain than if placed on a high ridge that throws off the water. In ground that is insufficiently drained this plan will not answer for autumn planting, as the crop would be liable to suffer from too much wet. All the Cabbage family are surface-rooting, and do not push their roots down to any considerable depth, consequently, unless where the soil is extremely shallow, the above practice may with advantage be followed. For the summer crops this system can also be recommended, as it admits of the plants being earthed up sufficiently without a ridge of any consequence being formed, and which for the reason above stated is better absent. When the space intended for the principal crop is filled, it is advisable to prepare a small corner in which to put some plants for a reserve; these may be pricked out about 6 inches apart, and will come in for filling up any gaps that may occur through the effects of a severe winter.

The Flower Garden and Pleasure Grounds.

No falling off has as yet taken place in the appearance of the various plants in the flower garden. The various sorts of Pelargoniums are still in great beauty, and most kinds have this season been even more floriferous than is usually the case. The hot and dry weather of the greater part of the month of August, following the copious rainfall of July, has, no doubt, been conducive to this result, as far as Pelargoniums are concerned; while beds of such plants as the Verbena, Calceolaria, the dwarf Ageratum, &c., would, if the weather continues dry, be much benefitted by one or two liberal waterings, which will enable them to hold out during the remainder of the season, or as long as there is an absence of frost, and will also enable them to furnish an abundant supply of healthy cuttings. The first part of next month is sufficiently early to insert cuttings of the Calceolaria. The dwarf Ageratum Imperial Dwarf is certainly the best bedding plant of its colour; this season it has been exceedingly fine, and, on account of the moisture of July, has grown somewhat taller than usual. There is sometimes a difficulty in obtaining healthy cuttings of this plant early in the season; but, with the assistance of a slight bottom-heat, it will root very freely, even when the season has considerably advanced, and it is, moreover, unnecessary to winter more than a few store pots, or plants from the beds, to furnish cuttings in spring, when it can easily be increased with great rapidity. The various kinds of Alternantheras, Coleuses, &c., are now looking better than they have done at any time during the present season, the early part of which was hardly sufficiently warm for their rapid development; and, in some situations, it may be difficult to obtain cuttings of them. But this is of little importance, as the plants can be movèd from the beds with little check to them; and these furnish abundance of cuttings for the following spring. The herbaceous border, for some time to come, will be gay with late flowering plants of various kinds, conspicuous among which will be the Tritoma Uvaria, Aconitum japonicum, Fuchsias, Chrysanthemums, &c. As the flower-spikes of Gladioli decay, they should be cut off, care being taken to avoid injury to the foliage, as many of the plants will continue to throw up spikes for some time to come. The flowering stems of various herbaceous plants should be cut back as soon as the blooms are beginning to decay; and this will, in many cases, cause them to throw up blooming spikes. This applies to such plants as the Delphinium, Pyrethrum, Antirrhinum, Pentstemon, Phlox, &c.; while the various herbaceous Asters, Helianthuses, Rudbeckias, &c., all exceedingly showy about the present time, should be all carefully staked to prevent breakage by high winds. The present time is very suitable for sowing annual flower seeds of various kinds for spring flowering, such as the Nemophila insignis, and some of its congeners or varieties; also some of the various Collinsias, more particularly C. verna and bicolor, which are both excellent spring bedding plants, together with such species as Silene ruberrima, pendula, &c., Malcolmia maritima or Virginian Stock, Myosotis sylvatica, Candytuft, Saponaria, Viscaria, Mignonette, &c. On light warm soils the first or second week of the present month is sufficiently early to sow the seed of these plants with the view of preserving them through the winter; and, to do this successfully, it is necessary that the plants should not be large or drawn up; to prevent this, they should be pricked off into beds of light soil as soon as they are large enough to handle, and, if possible, in a somewhat sheltered situation, while a few of each sort might be pricked into boxes or pans and have the shelter of a pit or frame during winter. Seeds of the Echeveria metallica and various other succulents required for carpet bedding, &c., should be sown under glass now, and if kept growing slowly during the winter months, they will be found to be sufficiently forward to be used for that purpose next June. Seeds of annual flowers should be gathered as they ripen, and the plants should be cleared off the beds and borders as soon as this has been done. Their places can be at once taken by Brompton Stocks, Wallflowers, and spring bulbs of various kinds, which should be all carefully labelled at the time of planting, so as to point out their whereabouts, and prevent them being injured by the digging or cleaning of the borders. Keep gravel walks free from weeds and the litter of falling leaves, &c. Mow lawns and Grass verges as closely as possible, and remove worm-casts, which will now begin to be troublesome, by sweeping, and afterwards roll the turf well down.—P. GRIEVE, *Culford, Bury St. Edmunds.*

Roses.

As the autumnal Roses are now in full bloom, those about to make new plantations would do well to make notes of some of the freest-flowering among them, more especially in cases in which large quantities of cut flowers are wanted in the autumn. There are many that could be recommended; but it is best for each cultivator to make his own selection, as some like cupped and globular flowers, while others prefer such as are flat and recurved. I have, however, ventured to name the following twelve varieties, which, in my own case, have proved useful in maintaining a good supply of cut bloom all through the autumn:—Anna Alexieff, rose, free-flowering, and an excellent dwarf variety. Baronne Prevost, pale rose, large and full, and a kind that flowers well till late in the autumn. Boule de Neige, white, flowers in clusters, and good for bouquets. Devoniensis (Tea), white, centre tinted with yellow; one of the best bedding and perpetual flowering Roses that we have, and one which does well on its own roots; it requires a little protection during the winter. Duke of Edinburgh, crimson, shaded with maroon; the best of the autumn dark Roses; good alike in beds and for forcing. Elizabeth Vigneron, rosy-pink; an excellent autumn variety; good in habit, and useful for all kinds of decoration. Jules Margottin, bright cherry; a free-flowering variety, and, if kept well pruned during the summer, an excellent pole Rose. La France, pale peach, shaded with silver; a good variety for all kinds of decoration. Marquis de Castellane, bright rose; an excellent autumnal variety. Prince Camille de Rohan, very dark crimson; an excellent autumn-flowering variety. Souvenir de la Reine d'Angleterre, bright rose, full and good in form; the best of all autumnal Roses, and one which flowers very late in the season. Souvenir de la Malmaison (Bourbon), flesh, changing to white; an excellent bedding variety, and one which blooms freely in autumn, and does well on a wall. There is one Rose which I have not mentioned, viz., Gloire de Dijon, an excellent variety; but it does not pack or travel so well as some of the above kinds. It is, however, an excellent Rose for all decorative purposes, and a good bedding variety.—H. G.

Indoor Fruit Department.

Peaches and Nectarines.—Trees trained to wires, or upon walls under glass, should be examined as soon as the leaves are all cleared off; and, if it be found that scale has in any way affected their bark, measures should at once be taken to stamp out this pest, which is the worst enemy that attacks fruit trees. If the trees are thoroughly ripened, they may be pruned, taking care to save all natural spurs, leaving the best placed young wood, and cutting back only when three buds are discernible. Single buds are, as a rule, flower buds only; but the centre buds of the triplets are wood buds, and lead up the sap when growth commences. Laying the shoots in thickly is an evil which should be guarded against. With healthy well-ripened trees, we never found it difficult to get a fruit to each square foot of surface. Cut out every particle of dead wood, or decaying spurs; and, when this is done, commence the destruction of the scale. Get a quantity of warm water, and mix soft soap in it, till it is frothy. Then let careful hands, with short-haired brushes, commence at the trunk of the trees, and wash every part of the bark, both of old and young wood. Let the loosened branches hang suspended, so that the whole of the wood-work may be washed, and the soapy water enter every crevice. We have used turpentine, and other destructive agents, for cleansing; but, if the structures are to be painted, this washing is unnecessary. The washing of the trees may have to be repeated before forcing begins. All the surface soil inside the buildings may be taken away, and the trees kept cool and airy. Figs may be washed in the same way as Peaches, after any wood, which is crowding the tree, is cut away; and when the leaves have fallen naturally off pot trees, they may be placed in a position where the sun will have full power on them; but depriving them of water will injure the trees materially. Crops, to ripen in November, may have a good soaking of manure-water, the surface being kept loose and open afterwards. Cucumbers may be planted when the plants are strong enough; rotted turves, mixed with decayed leaf mould, suits them well. If bottom-heat is supplied by hot-water pipes, there should be provision made to prevent the roots being scorched, as if the pipes come in contact with the soil, a dry unhealthy position will soon be occupied by the roots. Little soil may be given at first, but pieces of turf should be added as the roots appear.—M. TEMPLE.

Vines.—Should heavy rains prevail after this time, lay the pots of early Vines, which have been placed in the open air, on their sides, so as to prevent the soil from becoming too wet, when rest is not so complete as when it is in a comparatively dry state. The leaves on pot Vines, for very early forcing, should now be yellow and partially shed. It is very advantageous that these Vines should, of their own accord, ripen thoroughly and early, and this cannot take place when they are kept in a close, hot atmosphere till late in the season. Under these circumstances, they may appear brown on the outside but never ripen thoroughly, and are slow in starting into growth at any season, more especially during the winter time. Continue to keep planting canes, and other kinds in pots, moderately supplied with water, and let them have a free circulation of air to harden the wood and swell up the eyes for the next season's crop. Some berries are now decaying in bunches of Hamburgh and other thin-skinned kinds, the fruit of which have been ripe for some time. These, and any that are wasp-eaten, require cutting out. Fire heat should not be much employed about such Grapes, or they very soon shrink and lose the plump appearance which characterises well-grown Grapes.

Pines.—Plants swelling their fruit for the late autumn supply now require close attention as regards watering and the maintenance of a steady bottom-heat, and the same remark applies to plants showing fruit for mid-winter consumption. Those fruits which rise well up from the leaves will be found to ripen best, and have the finest flavour in the winter months. Black Jamaica generally comes well up, and so does Prince Albert, both of which are fine winter kinds. Ventilators in Pineries may now be kept close during the night, and, when air is given in the day-time, admit it from both the back and the front lights, so as to cause it to circulate freely. Close very early in the afternoon, and take every advantage of sun-heat to keep the temperature up without the aid of fire heat. Suckers, of which two or three were put in a small pot, will probably now be growing thickly together. In such cases, much better plants will be formed before spring, if they are potted singly into 6-inch pots. The change will produce no bad effects, if they are kept for a few weeks afterwards in a hot, moist pit.—J. Muir.

The Flora of Greenland.—The valleys and gorges of Disco, especially the Lyngmarken and the shores of Englesmanders Havn, in their gay summer clothing of Mosses and wild flowers, furnish an excellent example of the flora of both north and south Greenland—of the plants which will become familiar to the explorers further north, and of the less hardy species which do not occur beyond this parallel. Of the 206 species which compose the Arctic Greenland flora, upwards of two thirds were collected by the officers of the expedition round Godhavn. The vegetation covers the ground in thick masses, forming turf on the level places, while it fills the chinks and crannies of the rocks and creeps over the surface of the stones, giving a very bright appearance to the near view of this land of Disco in summer. The prettiest thing of all and the most abundant is the Club Moss (Cassiope tetragona) with its graceful little white bell-flowers, like miniature Lilies of the Valley. With it are generally the dwarf Willows and Birches, and the Vaccinium with its red flower and glossy little leaves. But for the plague of mosquitos those lovely Mosses would form soft and most luxurious beds. The Alchemillas, the Angelicas, and Whortle-berries in the Lyngmarken, and the rich masses of Holly Fern in Englishman's Bay, will not be seen further north. Quantities of red snow were also found on the heights above Godhavn, and specimens were carefully collected and preserved. Here, too, were the salad-supplying plants, the Sorrel and Scurvy Grass, and many others. The herbaria formed at Godhavn will doubtless be most useful to the explorers.

Propagation of Hardy Evergreens.—This is the best time for striking common Laurels. These and Laurustinus I put in in large quantities last year, between the middle and end of August, and scarcely one in a hundred failed.—T. P. S.

Amarantus Princess of Wales.—We have sent you a few tops and laterals of a seedling Amarantus which we raised here last year. We have called it Princess of Wales. It grows about 3 feet in height, and is quite different from A. Henderi.—W. Hender & Son, *Plymouth*. [The specimens sent were red and yellow in about equal proportions, and bright in colour, considering the comparatively sunless season which we have had.]

Brownea macrophylla.—This most magnificent of Browneas flowered at Lakelands, Cork, this season. Instead of, as on previous occasions, only producing its glorious flowers from the main stem, they were produced freely from the terminal branches. We learn from the "Irish Farmers' Gazette" that with a view to permitting their more free development, Mr. Crawford is about to raise the roof of the stove in which is growing his unrivalled collection of Browneas, the finest of its kind that exists.

Damage Done to Shrubs by Mowing Machines.—I have been forcibly reminded of this to-day by an inspection of a fine plant of Golden Holly, which appeared to be declining in health. On examination I found that my rough labourer has for some time gone upon the principle that everything must stand out of the way of the mowing machine, and so, taking the box off the machine, he has pushed it under the bottom branches, mauling them very severely, and bumped the front roller rod against the stem of the plant, bruising it so badly, nearly all round, that the stem is all but ringed. I fear that valuable shrubs have a bad time of it with mowing machines in the hands of rough workmen.—N. H. P.

Picea Pinsapo a Wasp Destroyer.—A specimen of this Conifer on a lawn here is so attractive to wasps that swarms of them feed on the resinous substance exuded by it, until they drop stupified and subsequently die on the ground in hundreds. Has this been observed elsewhere?—A. J. O., *Felcourt, East Grinstead.*

THE KITCHEN GARDEN.

POTATO CULTURE, WITH SPECIAL REFERENCE TO THE DISEASE.

The remarkable virulence of the Potato disease in 1872 caused renewed attention to be directed to the phenomena which are known to accompany its appearance, year by year; and it induced many enquirers again to propound their views as to its cause, and the best means to be adopted with a view to its more or less complete prevention. It will be remembered that, under these circumstances, Earl Cathcart offered a prize of £100 for the best essay on the disease and its remedy. Ninety-four essays competed for this prize, which was withheld; but, at the same time, it was suggested that a special committee should be appointed to consider and report upon the matter. That committee drew up a schedule of questions relating to the effect of different methods of cultivation on the disease, and sent it to a large number of experienced Potato growers in the United Kingdom. This produced a number of replies, which have been printed in the "Royal Agricultural Society's Journal," from which the following are extracts:

In Lancashire, in the case of field culture, the interval between the Potato crops on the same land appears to vary from four to eight years, the crops following each other more rapidly on the lighter soils. The manure applied averages about 20 tons of farm-yard per acre, with the addition of more or less guano or artificial manure in some cases. On heavy lands as much as 30 tons of farm-yard manure per acre is applied, and on light land as little as 10 tons per acre, the deficiency being supplied either by guano, guano and bone-dust, or other fertilisers, to the extent of from 3 to 4 cwt. to as much as 6 to 8 cwts. per acre. Generally, it may be observed, that farm-yard manure alone is preferred on heavy land, but that some light-land cultivators do not object to supply its place to a certain extent with guano, bones, or other substitutes. There is considerable variation in the width of the drills, and of the distance apart in the rows. For late Potatoes the drills vary from 26 to 32 inches in width, the plants being from 9 to 18 inches apart. The distances are less for early than for late varieties of Potato, especially with regard to the width of the drills. These are, in some instances, reported to be as little as 18 or 20 inches wide for early varieties. In the neighbourhood of Warrington, especially on the Cheshire side, it is the chief aim of the cultivator to get his Potatoes in the market as early as possible, and the greater bulk are sent to Manchester before any disease appears. As a rule, the early varieties are all sprouted in boxes before planting. The land is manured and laid up in beds a yard wide; one man makes holes with a setting-stick, two women or boys put in the sets (which are sprouted about an inch long) with the sprouts upwards; and the holes are closed with rakes by women or boys. In the course of a week or two the beds are covered out of the furrows with an inch or two of soil, nothing more being done to them, except weeding by hand when required, until got up for the market in June. The chief kinds of Potatoes planted are, in the order in which they are reported to resist disease, Skerry Blues, Baron's Perfection, Scotch Downs, Paterson's Victoria, Flukes, Regents, Kemps, &c. The two first-named varieties are reported to be the least liable to disease in the majority of cases; but two or three growers in each case have added that they do not take in the market, owing to their inferior quality. Two growers add that Flukes were formerly much more free from disease than they have been of late years. The disease appears in some years earlier than in others, and there is a considerable weight of evidence to prove that, although it is not generally noticed in Lancashire until about the 12th to the 20th of August, yet that in 1872 it appeared as early as the third week in July. Again, the reports from heavy land cultivators indicate an earlier appearance of the disease than those from the occupiers of light land. Most of the growers report that they have never found differences in modes of cultivation and management to have any appreciable effect in checking the disease, except that the more highly the land is manured the more the crop is diseased. Applications of lime, sulphur, and similar substances to the haulm after the appearance of the disease have either not been tried or have been found of no avail. The same may be said of the plan of pulling up or cutting off the tops on the appearance of the disease, for seven growers who have tried it report unfavourably of their own experience. With regard to early or late harvesting, opinion appears to be very much divided; but this may be to some extent owing to the fact that many of the Lancashire Potato-grounds being in the neighbourhood of large towns, it is found most profitable to get the crop and sell it as soon as possible. Several growers add that, although this is their practice, yet if they wish to store any portion of their crop, they prefer to keep them in the ground some time after arriving at maturity, and to harvest them only in dry weather.

In Cheshire and North Wales the same divergence of practice as in Lancashire, with reference to quantities of farmyard and other manures applied to the land, is noticeable. One grower states that he uses from "6 to 7 cwt. of salt per acre," which substance Dr. Voelcker has proved by experiment to act prejudicially on the Potato-crop. The quantity of seed planted per acre also varies very much; but the variation in this respect is doubtless due in some measure to the fact that early Potatoes for the Manchester and Liverpool markets are largely grown in Cheshire. "Nearly all the Potatoes planted (says one grower) are sprouted from 1 to 3 inches long before they are set. We have boxes, which we purchase at from 6d. to 8d. each, 2 feet 7 inches long by 1 foot 9 inches wide, and 3¼ inches deep, with a small space cut in each end to allow the hand in, to carry them by. Each corner is nailed to a piece of wood about 1½ inch square, which projects 3 inches above the sides and 2 above the ends of the box. The ends are stronger and deeper to allow for the hand-hole above the Potatoes. Each box will hold half a bushel or more. These boxes, when filled with seed to sprout, are put one upon the other in tiers, upon lofts or upon framework suspended from the roof or timbers of the building above the cattle. The breath and natural heat of the cattle force them and protect them from frost, unless it be very severe, when we cover them with straw, which we allow to remain while keen frosts continue, looking at them occasionally to see that they are not getting too forward. We also reverse the tiers of boxes top to bottom two or three times during the winter, because the lower boxes sprout quicker than the higher ones. Sometimes we box some of our seed straight off the field in July or August, and it keeps remarkably well unless the disease has made its appearance among them before they have been raised. The unpleasant smell from the tops and the spots on the leaves, are the first indications of disease, and this occurs before we can perceive anything amiss with the tubers. When we find this to be the case, we lose no time to get them off to market, because we are fully convinced that when this happens the tubers will go, though they may appear quite sound, notwithstanding that the disease exists in the tops. Unless they can be sent to market at once, we prefer to let them remain in the soil until the tops are quite dead; for this reason—those tubers that may resist the disease lie more separate from those already affected, and therefore stand a better chance of keeping sound." The preponderance of opinion again appears to be in favour of Skerry Blues as the best late kind, and next to them Paterson's Victoria. Sir Watkin Wynn's gardener remarks, "Singular to say, the reputed Flour-ball proved last year to be the worst affected with the disease." Most of the Cheshire growers send the greater proportion of their Potato crop to market before the appearance of the disease. Most of the growers prefer their late Potatoes to remain in the ground until they are well matured, and to harvest them in dry weather, so as to diminish the chance of storing any that are diseased. Last year there was a trial of Potato diggers on the 8th and 9th of September. The Potatoes got on the 8th—a dry day—kept beautifully; those got on the 9th—a wet day—were nearly all spoiled, although the greatest attention possible was bestowed upon them. With Potatoes it is a question of wet and dry weather, and wet and dry land, in reference to the extent of the disease. With regard to pulling up the tops immediately on the appearance of disease, one grower says:—"I have found upon two occasions that the pulling up of the tops immediately upon the appearance of the disease, the tubers being fit to be raised, has saved the crop. Last year it was not so satisfactory, which I attribute to my having left the operation too long, owing to the scarcity of labour." Potatoes planted with artificial manure are reported to keep much better than when planted with farm-yard or horse manure, but not more than half the crop can be got from artificials. Sir Watkin W. Wynn's gardener states that various experiments have been tried with lime, soot, sulphur, sea sand, laying down the haulm, and planting on raised beds and heaps. No perceptible effect could be noticed with the outward applications, but the planting amongst sea sand had the best effect. The next best was laying down the tops. Not more than 5 per cent. was lost on the average from disease, as the crops were early planted and early raised—all being "earlies" and "second earlies." The sets were all planted whole; the round sorts 2½ inches diameter, kidney sorts 3 inches long. Well rotted horse manure was used and deeply dug in in the autumn, and the sets were planted with the dibber in the end of March, dropping some sea sand over the seed to prevent slugs eating it. Three-quarters of an acre are generally planted in this way, always following Carrot crops. Here the selection of the freest and driest soils with the most open situation, early planting, and early raising, cool, dry, and early storage, change of seed from distant localities, and the thorough working of the soil in dry weather, are the best preventive measures, which not only increase the crops but reduce the disease to a minimum.

Melianthus major. (See p. 213.)

From the west-midland counties, those who have grown the White Rock, Paterson's Victoria, Fluke, Farmer's Blue, Early Rose, Red-skin Flour-ball, and other kinds of Potato, state that the variety least liable to disease is unquestionably the Red-skin Flour-ball. They state, too, that the effectual earthing up of Potatoes is of the utmost importance as a preventive of disease, owing to the more perfect drainage and protection it affords to the tubers from heavy rains. A Warwickshire grower states that the best results he has found is by using a good-sized Potato for seed, and using burnt earth or any kind of burnt ashes; the ashes appear to absorb the water and keep the Potato dry. Another, in the same county, says—"Plant as early as possible, on a well-drained soil; never put on farmyard manure in the spring or planting-time, and let it be well rotten when applied in the autumn; where burnt ashes can be had use them freely."

In the south and west of England guano, or dissolved bones and guano mixed with peat-ashes or peat-charcoal, is found to produce the soundest crops, applied in the following manner:—The sets having been placed in position, a man follows with a seedlip full of the manure, and strews into the furrow by hand the requisite quantity, say 4 cwt. of Peruvian guano, or 6 cwt. of dissolved bones and guano—mixed one-third guano, two-thirds bones—per acre; the seed and manure in close contact are then buried together. The application of lime, sulphur, or other materials has not been found to diminish the tendency to disease in the tubers. With our Fluke Potatoes, says one grower, which throw but little haulm, we were year after year so troubled with weeds after the haulm decayed that we were occasionally obliged to mow the weeds before we could lift the tubers; we, therefore, thinking we could grow Turnips instead of weeds, sowed over the land, previous to earthing the Potatoes, 1½ lbs. of Turnip seed per acre, consequently when the haulm died off the Turnips grew up and were never hoed, but gave excellent crops; in the wet season of 1860 particularly, in which year we grew 28 tons per acre of Turnips, pulled off for market, before digging the Potatoes, which were a full crop and quite sound. We have never found pulling or cutting off the haulm answer, but we have sometimes found advantage from a second earthing, which kills weeds and buries the tubers deeper in the soil. Several growers in this district are of opinion that the earlier planted Potatoes are less liable to disease than those planted later in the season. With regard to early or late harvesting, the Rev. W. F. Radclyffe, of Okeford Fitzpaine, Blandford, says:—"Harvest as soon as the skin adheres to the tuber; never mind about the haulm being dead." On the other hand, another grower states:—"The bulk of my Potatoes are never lifted until October, for, if dug earlier, there are many tubers infected which show no signs of disease, and, when caved together, are apt to infect the whole." This cultivator also gives the following summary of his recent experience:—"In the very dry season of 1870 the Potatoes of this district were scarcely diseased at all. One field, which was a Furze brake three years before, was planted with Russians and Leather Coats in the middle of April: the produce was absolutely free from disease. In 1872 my Potatoes, which were planted in sunny dry fields, were very free from disease, although they were cut down early, while in many places the crop was almost destroyed. Last season there were Kidneys, Regents, Blues, and Leather Coats planted in one field. The Kidneys were fully matured when the rain came, on the 17th of August, and resisted the disease. The rest were in a growing state, and two-thirds of the tubers decayed. The tubers of Potatoes grown on land reclaimed from brake or wood are rarely diseased."

In the south-east of England, manuring in the autumn is the usual practice; and many growers add a dressing of artificial manure (generally superphosphate or Peruvian guano) at the time of planting. One cultivator has compared the results obtained from the same value of Peruvian guano, superphosphate, salt, lime, blood and fish manures, &c., and has found them much in favour of guano. The evidence with regard to the pulling up or cutting off the tops is eminently unfavourable, and early planting in well-drained lands is insisted upon. The evidence as to early or late harvesting is again contradictory, and seems to be based on various experiences with regard to the land, the state of the crop at the time of lifting, and the weather subsequent to the earlier Potato harvest. "There are certain essential points (says one grower) which ought to be more studied than they are as regards the disease. The following are some of them:—Selection of seed; temperature of soil; cultivation of land; and drainage. In the first place I believe that one sort of Potato is able to resist the disease better than another. In the year 1871 some Regents obtained from the Wisbeach district were planted in a field upon each side of our own original sort (the Regent); both of them grew well together until the disease appeared, when the bine of those from Wisbeach went in a most rapid manner, and, when taken up, those from the Fen land were diseased to the extent of 75 per cent., whilst our own sorts went only to the extent of 25 per cent. This was upon a gravelly soil. But it did not rest here, for upon a light sandy soil at five miles distant it was visible to the same extent, even to a part of a row where the one sort began and the other ended, with the same result at the time of harvesting. This, I think, clearly shows that the disease is not entirely atmospheric. Also Myatt's Early Prolific planted upon a soapy clay soil by the side of another Kidney gave similar results; the Myatt's Kidney going at the rate of about 30 per cent., whilst the other went at the rate of at least 90 per cent. As regards the temperature of the soil, I certainly believe that the more it is reduced the greater the chance of the disease; and, therefore, after a greater amount of wet, and when land has been worked in a bad season, like the last two or three, when it has been left in a cold and raw condition underneath and heat has succeeded, rapid evaporation has gone on and a great difference of temperature has been produced between the atmosphere and the soil, which is not at all beneficial to the tender Potato plant. Lastly, drainage is a very great question to be considered, not only with heavy, but also with light soils, where there is any probability of water concentrating in any particular part and becoming stagnant under the surface. It also assists in the time of drought as well as in the time of wet, for, owing to evaporation, the moisture in the soil acts by capillary attraction, and if the soil is well drained the attraction would go on in a more uniform and regular manner. About the keeping of sets every one is of opinion that they cannot be kept in too dry and protected a condition, so as to prevent any weakening of the tuber by sprouting."

The practice in the Metropolitan counties is to plant on land having a natural drainage, to change the seed, to plant good sets, to manure with well-rotted dung, to cultivate deeply and as long as possible before earthing, and to earth as deeply as practicable. Lime applied to the haulm after the appearance of the disease was found to be useless; but, where lime or burnt ashes had been applied in the rows at the time of planting, the disease has usually been somewhat lessened. Contrary to the usual opinion with regard to the effect of change of seed by purchase from Scotland, or elsewhere, and notwithstanding his own practice of changing seed every two years, Mr. Lake, a Rochester grower, remarks—"I have not found change of seed diminish liability to attacks of disease. I know a case in which the seed has been saved yearly from the same stock grown in the same field, which has not been found more liable to disease than fresh stock. The sort was Myatt's Prolific; the time, ten years." Both in Kent and Middlesex heavy manuring is the rule; Mr. Johnston, of Gunnersbury House, Isleworth, applies as much as 30 to 40 tons of stable manure to the acre, commencing in March and continuing immediately before planting until the whole breadth has been got in. The alternative practice is described by Mr. Newman, of Hayes Court, who applies about 25 tons of good stable manure in October and November. He remarks, "Autumn manuring I have always found a check to the virulence of the disease;" and again, "Previous to autumn cultivation I have lost three-fourths of my crop; *since* I have never lost more than one-third." He also states, "I procure my seed Potatoes from Scotland every year, and my experience has proved that I had better give £10 per ton for this change, than £5 for those grown more than one year in the south, both for quality and hardihood."

In Lincolnshire the preponderance of opinion is in favour of large-sized sets, which usually produce the heaviest crop of marketable Potatoes. With regard to the effect of different systems of management in preventing or arresting the spread of the disease, Mr. Moon, a large Potato grower states:—"I have found that when the manure has been put in in the winter, and the land has been deeply worked, I have had most sound Potatoes. Again, I find where the land has been growing Potatoes very often, there is more blight. I think that when the air is charged with electricity, and thunderstorms prevail, the Potato top is subjected to some subtle influence which induces disease; but you will sometimes find that even when the tops are struck, should the weather become fine, clear, and cold, the disease is stopped, and the tubers take little harm. With respect to cutting off the tops in a 6-acre field this season, on the first appearance of the disease, I operated upon half the field and left the stumps of the haulm standing. Where this was done, I had more bad Potatoes than elsewhere. I also pulled the tops in another field, and left others standing with them on; and where the tops were left and allowed to die of themselves, I had more Potatoes. For example, I pulled twelve roots, and left twelve roots with tops on; the former had 14 lbs. sound Potatoes and ½ lb. bad, the latter had 15 lbs. sound and 1½ lb. bad, showing, commercially speaking, a great loss." "My experience (says another grower) is varied. Cutting off the tops certainly has lessened the amount of disease; but sometimes, if done too early, it has seriously diminished the yield and injured the quality of the produce. On the other hand, if the crop is tolerably well grown, I think it decidedly advisable, promply to cut off the tops. I have no proof for or against second-growth." The following note, with regard to early or late harvesting, by Mr. J. W. Robinson, of Wyburton, Boston, may be fitly added as an illustration of the difficulty of obtaining positive evidence of value as to the effect of any kind of practice upon the origin or spread of the disease. Mr. Robinson states:—"In some instances I have found it better to harvest later, as those Potatoes that are attacked early then return to mother earth, and leave only the sound ones to be picked up. In other seasons (say very wet ones) the opposite effect might be produced; the diseased ones would rot the few sound ones, even in the ground. There are no two circumstances exactly alike. What is right in one case may be perfectly wrong in another."

Five reports come from Yorkshire, four of them being from growers in the celebrated marshland district in the neighbourhood of Goole, frequently alluded to as "Howdenshire." The soil is warp, of either natural or artificial formation, and much of it is remarkable for its good quality and suitability for Potato-growing. The course of cropping pursued in this district does not appear to be very well defined, but Potatoes are taken every second or third year, and sometimes two years in succession. From 10 to 15 cwt. of farmyard manure is applied in the autumn, and various quantities (from 3 to 10 cwt.) of artificial manure in the rows at the time of planting. The quantity of Potatoes planted is generally from 10 to 15 cwt. per acre. The time of planting extends from the beginning of February to the end of April, according to the season. As a rule the tubers are planted whole, and this practice has become more common than it was formerly. Large-sized sets, especially if they have been obtained from some distant place and cannot be exchanged for smaller tubers, are necessarily cut. The rows are generally from 27 to 30 inches wide, and the sets 10 to 15 inches apart, according to the luxuriance of the haulm of the different varieties, but some prefer to have the rows 34 inches wide and the sets closer together—about 9 inches apart.

As to the practicability of arresting the spread of the disease one grower says:—"I believe that pulling up or cutting off the tops on the first appearance of the disease does diminish its extent, but I am of opinion that it also greatly diminishes the crop, especially if the disease makes its appearance early in the season. I do not think it tends to supertuberating, as I believe the growth of the tubers is arrested, especially when the tops are pulled up." In this district opinion is unanimous in favour of harvesting as early as possible after the tubers are sufficiently ripe to bear it without injury. The following rules for the cultivation of Potatoes, with reference to the avoiding of the disease, laid down by one grower, may be worth attention:—"1st. Planting in good soils (second class and heavy lands are dangerous). 2nd. Having good seed direct from Scotland. 3rd. Planting as early as the season will permit. 4th. Apply hand-tillage to hasten the growth. 5th. Harvesting the crop while in a green and growing state, just before it is matured, taking care to store them so as to let the heat escape."

WINTER CUCUMBERS.

Little observation will suffice to show that the Cucumber is a surface rooting plant, and that consequently a great depth of soil is unnecessary. At the most, 10 to 12 inches of soil is quite deep enough. We had some planted a week or two ago in less than 5 inches of soil, and at this season they will succeed better thus than in a bed of greater depth; these have been already surface-dressed with stable-manure, and will require, from time to time, slight dressings of the above, mixed with soil, to keep them in a state of vigorous health. We have found stable-manure by far the best surfacing; necessity has compelled us to use that from the cow-houses; but it is far too difficult to utilise to be of so much use as the other. Manure-water should never be given, as we have found that it gives the fruit a strong taste; in the case of soot it causes them to be quite bitter. As to soil, it is a matter of very slight importance what quality it may be; our experience has been that they do well in any kind from strong loam to a very peaty soil, so long as means are taken to enrich it sufficiently with manure that can be used up directly. We are at present growing them in soil that a good many would call worthless; but they thrive as well in it as in the best selected turf we have seen tried. It is enriched with a fourth part of thoroughly rotten manure, surface-dressed with fresh dung, plenty of water being supplied. There is another point of some importance in Cucumber treatment which makes a vast difference, and that is in the matter of ventilation. Admitting air by the ½-inch during fine weather in not calculated to keep plants of any kind in a robust state of health, and Cucumbers form no exception to the rule. The more fresh air they get, the better will they succeed. At no time in mild weather, either night or day, will 2 or 3 inches of ventilation make a difference to the inside temperature; but it makes a difference to the inside atmosphere of great moment as regards the healthiness of the plants and inducing fruitfulness. We can confidently assert that Cucumbers will do better with a maximum day-temperature of 75°, and an unlimited amount of ventilation, than they will in a temperature of 85° with an atmosphere surcharged with humidity, and limited ventilation; however, of course, we have no objection to a temperature of 85° with plenty of ventilation. Our practice is to ventilate freely at all times during warm weather, to get the maximum amount of air on early in the morning, and not to reduce it till five, or later, in the afternoon. We never syringe Cucumbers, and do not supply much moisture to the atmosphere in which they grow. We have seen over and over again that high temperatures, and much moisture in the air are always sure to induce red-spider and green-fly. Structures with a pitch of roof under 40° are better suited for the Cucumber during summer than those with steeper roofs. During winter, the lower the pitch of the roof is under 45° the greater will be the difficulty in getting the plants to succeed; and if too low pitched, they will not grow at all, whatever may be the heat at command. Where proper structures are provided, there is no difficulty in obtaining Cucumbers during winter. Success will be all the more certain if the plants are got out early and grown on hardily, with plenty of fresh air and little fire heat; and the less soil they have, so long as they are kept supplied with liquid manure, the better.

The one great mistake in winter Cucumber-houses is in making them too contracted, thereby necessitating the placing of the hot-water pipes in too close proximity to the plants. Where no Cucumber-house, properly so-called, exists, a few fruit may be obtained from pots placed in Pine stoves; the larger the size of the pots the better, so long as they are well drained. By the same means a few may be procured in early spring, thereby saving much trouble in getting them in early where frames are the only means of obtaining them. It saves thinning-out the useless shoots and leaves if the shoots are kept continually pinched at the fruit or just above the first leaf of every fresh shoot: this mode of pinching keeps the plants in a continual state of fruitfulness without checking them by taking off too much at one time, and it is easily seen when any main shoot is failing, so that another may be carried into its place. Treated as above recommended, the plants will require pinching twice weekly. It is also of much importance for the well being of the plants to cut all fruits off by the time they are full-grown, or even before they stop swelling. Bi-weekly gatherings of all large enough to cut will keep them in better order than merely cutting a fruit or two as required for immediate use.

A word or two about Cucumbers intended for exhibition. The best fruits, as a rule, are produced from young plants in full vigour; two fruits of a size are quite sufficient for one plant to bear, though smaller ones may be coming on in succession. Vigorous old plants will also produce fine fruits if kept free from bearing for a short time, and young shoots encouraged. We have observed that the straightest fruits are produced in very sunless weather, but shading has no effect in sunny weather to keep them from growing crooked. The best plan is to give air very freely and to keep the surface of the bed and path moistened. No water should be allowed to come in contact with the fruit, lest the bloom, which is as indispensable in Cucumbers as in Grapes, should be in any measure destroyed, or the flower at the end displaced. It is of the first importance to have them fresh; better to sacrifice a little in the way of size than to have them past their best: it is also a point of importance to have a brace equally matched. Have a box made about the width the brace will fill, and about their length, in which, when cut, place them immediately, without afterwards disturbing them. As to the best sort for exhibition purposes, nothing will, as yet, beat fine samples of Tender and True. It may be a hint of some use to those who may intend exhibiting at some future time, that the shape of a Cucumber is very much improved if the plants are grown from cuttings. The Tender and True in fruit here is a little too long-necked to be "True," but where cuttings are struck from it, the produce would be shorter-necked and more like the original. The sort we prefer for ordinary everyday use is Telegraph, the flavour of which is excellent, its bearing qualities are first-rate, and it will succeed in a cooler temperature than a good many sorts. Munro's Duke of Edinburgh is also a handsome fruit. There is a fine, good-sized, and continuous-bearing sort not much known, well worth attention where several varieties are grown; and that is Pearson's Long Gun. Volunteer, a kind very like Telegraph, but not so fruitful, is also good. Blue Gown is the best, black-spined sort in cultivation, but it is difficult to get it true. The only sure way is to procure cuttings from a pure stock, and to keep up the supply from cuttings.—"The Gardener."

NEW PLANTS, &c.

Crocus Fleischeri.—This is a small, stellate, creamy-white-flowered plant, the coats of the corms being reticulate, as in Iris reticulata. This plant is an interesting addition to our bulbous plants, made by Mr. Elwes, who discovered it in Asia Minor last spring, and presented bulbs to the Rev. Harpur Crewe, with whom it has bloomed. It is found on the limestone hills near Smyrna, and in Cilicia and Lycia. As a garden plant it is not showy, although undoubtedly interesting to the botanical collector. "Botanical Magazine," t. 6,176.

Tulipa Greigi.—This is a glowing scarlet-flowered species, a native of Turkestan, having brown spotted leaves, and a dark blotch at the base of each segment of the flower, surrounded by a golden ray. This plant has flowered with the Colchester Seed and Bulb Company, by whom it was exhibited in flower at South Kensington, in the spring of the present year, and it has also since been flowered by Max Leichtlin, Esq., at Baden-Baden, who has succeeded well in its culture. The Colchester plant had a conspicuous white tip or horn at the petal apex of each, but these are entirely omitted in the figure here cited, although a marked feature in the plant. It has been figured by Dr. Regel in the "Gartenflora," and a figure is given at t. 6,177 of the "Botanical Magazine."

Mertensia alpina.—This is a very pretty blue-flowered Barragineous plant from the Rocky Mountains, where it is found at a high altitude, and inhabiting an immense stretch of latitude, namely, from 39° N. to the Arctic Sea. The plant is 10 or 12 inches in height, bearing terminal nodding racemes of bright blue, bell-shaped flowers. The stems are clothed with linear bright green leaves 1½ to 2 inches in length. It has been introduced to our gardens by Messrs. Backhouse & Sons, of York, and is well worth culture in sheltered portions of the rock or wild garden. Figured in "Botanical Magazine," t. 6,178.

Allium narcissiflorum.—This is a very attractive Liliaceous plant. It is a native of Dauphiné and Piedmont, and belongs to a large group of species, in which the annual bulbs arise from a creeping perennial root-stock. The plant is cultivated by Mr. George Maw, of Benthall Hall, Broseley, who procured bulbs from Monte Campione, in the north-west of Italy. The linear or strap-shaped leaves are three to five in number, and of a bright green colour, the flowers being borne in terminal, nodding, umbellate clusters, on slightly compressed scapes, a foot or more in height, the individual flowers being about the size of a shilling, and of a lively lilac-purple colour. It is well worth culture as a rare and showy hardy bulb. "Botanical Magazine," t. 6,182.

Carnivorous Plants.—I have found Drosera rotundifolia and intermedia in great numbers on Thorne Moor, and have taken a great number for the sake of watching their powers of digestion, which are truly marvellous. I find the leaves of Drosera rotundifolia which grow in the deepest holes away from the sunlight are quite green, while those which are on the open ground are a bright red. Does the sunlight in this plant change its chlorophyl granules (if they are naturally green) into red, as it changes the white ones of other plants into green? If any of your botanical readers want specimens, I will supply them with six of either kind by post, if they will send me a stamp. They should be planted in peat well soaked with water. D. intermedia will do with more water than D. rotundifolia, so they should not be planted together.—A. Peacock, *Eastoft Vicarage, Goole.*

THE HOUSEHOLD.

Cucumbers (Pickled).—Make choice of those which are small and not too old; put them in jars, and pour over them a brine made of two-thirds of water and one of vinegar, with salt in the proportion of a pound to three pints of liquid. Put the brine on the fire till the salt is melted, let it stand to settle, and before you use it pour it off clear. When you wish to use the Cucumbers take the rind off, and dress them in the same way as the fresh Cucumber.

Storing Walnuts.—Walnuts intended for keeping should be suffered to fall of themselves from the trees, and be afterwards laid in a dry, open, and airy place, till they become thoroughly dried. Then pack them in jars, boxes, or casks, in alternate layers, with fine clear sand, which has previously been well dried in the sun, in an oven, or before the fire; set them in a dry place, but not where it is too hot, and they will keep good till the latter end of April. Before they are sent to table, wipe the sand off, and if they have become shrivelled, steep them in milk and water for six or eight hours; this will make them plump and fine, and will also cause them to peel easily.

Vegetable Marrow Preserve.—Steep the Marrows in salt and water, keeping them in a warm place for a day or two; wash them in spring water; boil them till tender in syrup, made by allowing one pound of sugar, one pint of water, three-quarters of an ounce of ginger to each pound of fruit; the rind and juice of a Lemon, added when nearly done; a wineglass of gin added at last to about four pounds of preserve.

—— Choose one not too ripe, peel it, and cut it in strips not too thick, and take out all the pulp; make a syrup of brown sugar and water, pour it boiling hot over the Marrow, and let it remain two or three days; then pour off the syrup and throw it away. Drain the Marrow, and to every pound put a pound of loaf sugar, the peel of two Lemons cut very thin, and also the juice; put some whole ginger sliced and a little cayenne pepper into a muslin bag. Put all in a preserving pan and over a slow fire until it looks clear; when it is done, add a wineglass of whiskey, and when cool put it in jars. The whiskey can be omitted if not fancied; it is very good without.

—— Peel and cut the Marrows in quarters, take out the seeds, cut the quarters into pieces about an inch square. Lay them on a dish and sprinkle a little pounded sugar over them. Let them stand twenty-four hours, then pour off the juice and throw it away, leaving only a little to moisten the sugar afterwards used. Take equal parts of fruit and sugar, and allow one Lemon to every two pounds of fruit. Peel the Lemon very thin, cut the peel in very fine strips, squeeze out the juice, and add both to the fruit and sugar. Put it on a gentle fire, and after it boils simmer till quite tender. Just before it is done, add ground ginger to taste. Let the jam cool before tying it down. This will be found very superior to the common sorts of jam, and much resembles an Indian preserve.

Stuffed Tomatoes.—Take about as many Tomatoes as there will be people to eat them; cut a circle off the top of each, and with a small spoon remove all the pips, which put on one side; then make a stuffing of Shallots, Mushrooms, and bread crumbs, in the proportion of ten Shallots and half a pound of Mushrooms for every ten Tomatoes. Mince the Shallots, separately, very small, and toss them in a saucepan with some butter. When cooked, add the Mushrooms, also cut up small, with Parsley, salt, and pepper, and enough bread crumbs to make a good thick paste. Squeeze the Tomato pips, and with the juice moisten the stuffing, after which divide the latter into as many portions as there are Tomatoes, inserting one into the hollow of each Tomato; then re-cover the vegetables with the circles cut off the top; place them in a dish large enough to contain all, near one another, pour over them two tablespoonfuls of olive oil, bake in the oven for half an hour, and serve.

Fricassed Tomatoes.—Place the Tomatoes in a stone jar, and put it into a steamer. When they are tender, beat them to a pulp, and put them into a stewpan with a little Onion (which has been minced and stewed in butter until it is tender), a seasoning of pepper and salt, and some chopped Parsley; simmer the mixture for a few minutes, and serve it very hot. It is good either alone or served in the dish with chops, or other meat, sausages, skate or fish of any kind. Tomatoes and sausages are capital. Fry the sausages and arrange them in the dish in front of the fire. Cut the Tomatoes into slices with some Onion thinly sliced; fry them, season them with pepper and salt, place them among the sausages, and serve them hot. In the same manner they are excellent with anything warmed a second time —chicken, rabbit, game or poultry, cold meat in slices, or fish of any kind.

SOCIETIES AND EXHIBITIONS.

CRYSTAL PALACE,

September 7th and 8th.

This show was scarcely so good as those of previous years, a circumstance, doubtless, partly due to its following so closely after the Alexandra Park show of last week, and partly to the near approach of the great International Show, which is to take place at Edinburgh on the 15th inst.; Apples, Pears, and Plums were, however, well represented, and there were also good collections of Gladioli, Dahlias, and Roses, from Messrs. Kelway & Son, Mr. Charles Turner, and Mr. Coppin, of Croydon.

Certificates.—These were awarded to the following new florists' flowers:

Dahlia Mrs. Standish (Turner).—An attractive fancy variety, of a clear amber colour, striped down the centre of each petal with white.

D. Sarah Gamp (Turner).—A distinct and effective flower, of a clear yellow colour, the tip of each petal being edged with red.

D. Samuel Plimsoll (Turner).—A deep rich velvety-purple variety, of good form, and a welcome addition to dark-coloured varieties.

D. Barmaid (Turner).—A good white flower, the tip of each petal of which is edged with crimson-purple.

D. John Bennet (Rawlings).—Yellow, shaded and tipped with orange-red.

Gladioli, Dahlias, and Roses.—Messrs. Kelway & Sons staged a collection of thirty-six cut spikes, among which we noted the following varieties, viz., Cacano, a bright rosy-lilac; Clymenus, white; Eugene Scribe, rose, flaked with magenta; Pitho, vivid scarlet; Horace Vernet, a fine spike, rich scarlet, striped with white; Clupia, lilac, flaked or flamed with rose; Shakespeare, stately in spike, and bearing fine waxy-petalled flowers, white, with a rosy centre; Meyerbeer, scarlet, fine in spike; Rev. H. Dombrain, soft salmon-rose, shaded scarlet, spike stately, and full of well-formed flowers; Phineus, scarlet, flaked with purple; Racelia, scarlet; Zenobia, lilac, flaked with rose; and Nicoteles, rose, flaked with rich scarlet. In the class of twenty-four Gladioli, Messrs. Kelway & Sons were first with good spikes of Galenus, salmon-scarlet; Rubellius, rose; Meyerbeer, scarlet; Lady Bridport, rose, flaked vermilion; Shakespeare, white and rose; Eliza, salmon, with a dark stripe; and Pithys, brilliant scarlet. In the class of twelve spikes, Mr. H. Dombrain was first with Orphée, white and magenta; Norma, white and lilac; Meyerbeer, vermilion-scarlet; Horace Vernet; and others. Mr. J. Douglas also had a good collection, in which were several seedlings raised by the exhibitor. In the class of six spikes, Messrs. Kelway & Sons were first with Edward Courteney, rich lilac; Lord Howard, salmon-scarlet; Simon Renard, having a stately spike of fifteen open flowers; Lord Petre, vivid scarlet; Queen Mary, white and magenta; and Reginald Pole, rosy-salmon, flaked with scarlet. Mr. Henry Coppin, the Rose Nursery, Shirley, Croydon, staged two fine stands of cut Roses, and several effective stands of show and fancy Dahlias.

Collections of Fruit.—These were staged by four exhibitors, but none of the fruit shown were above average merit. Mr. Bannerman had the best collection, which contained Black Prince and Trebbiano Grapes, a splendid Queen Pine, excellent Barrington Peaches, Brown Turkey Figs, Marquis of Ailsa Melon, and Pitmaston Orange Nectarines. Mr. Goodacre, of Elvaston, had a good Smooth Cayenne Pine, Pitmaston Orange Nectarines, good Black Hamburgh and Muscat Grapes, Brown Turkey Figs, Noblesse Peaches (rather small), and a well-ripened Green-flesh Melon. A good collection came from Mr. Lane, containing fine Brown Turkey Figs, very fine Pine-apple Nectarines (more highly coloured than usual), well-coloured Violette Hâtive Peaches, Thornycroft Melon, a well-swelled Queen Pine (with very large pips), and Black Hamburgh and Muscat Grapes (large in berry, but small in bunch, and scarcely ripe).

Pines.—Of these, light, splendid fruits were staged. Mr. Tillery, of Ashley Park, had a plump, nearly globular, but well-ripened Queen, which weighed 5 or 6 lbs. Mr. Plummer had a good Moscow Queen, and Mr. Goodacre had also a fine fruit of this Pine, but scarcely so well coloured as the others. In the class set apart for any other variety, Mr. Miles, of Wycombe Abbey, staged a Charlotte Rothschild, weighing 5¾ lbs. Mr. Plummer had a Smooth Cayenne, of a deep colour; Mr. Douglas, a handsome fruit, named Charlotte Rothschild, but very different in appearance from that which was shown by Mr. Miles; and Mr. Plummer had a good Queen, not for competition.

Grapes.—Among these, Black Hamburghs were fairly represented, Messrs. Lane & Sons having the three best clusters, all of which were fine in the berry, well-coloured, and covered with a fine bloom. Mr. J. Crane also had good bunches, slightly rubbed; and good specimens came from Mr. Alexander. The best Muscats came from Messrs. Lane, whose examples were large, both in bunch and berry, but slightly rubbed. Mr. Clark had good clusters, but not so large or so ripe as those from Messrs. Lane, who had, moreover, well-ripened examples of Foster's Seedling, perfect in bunch, berry, and bloom. The second prize was awarded to small, but well-ripened bunches of Buckland Sweetwater; and the third award went to Golden Champion, fine both in bunch and berry, but scarcely sufficiently ripe. In the class of Black Grapes, exclusive of Hamburghs, Mr. Bannerman had three splendidly finished clusters of Gros Colman, a fine large round-berried Grape, excellent for show purposes, and a good companion to Golden Champion in size. Messrs. Lane & Sons were second with splendid examples of that most delicious of all black Grapes, Muscat Hamburgh; and Mr. Snow, of Wallington Bridge Gardens, had also noble clusters, but scarcely ripe enough. Mr. Goodacre had the heaviest bunch of Hamburghs, the weight of which was 5¼ lbs., but it was badly grown; and the first prize for weight was therefore awarded for a very handsome bunch, from Mr. Crane, weighing 4 lbs. 9 ounces. A good miscellaneous callection of Grapes came from Messrs. H. Lane, who showed fine clusters of Muscat Hamburgh, Bowood Muscat, Black Alicante (in excellent condition), Foster's Seedling, Black Hamburgh, Buckland Sweetwater, Black Prince, Alexandria Muscat, and Mrs. Pince's Black Muscat (highly coloured).

Peaches and Nectarines.—Of Peaches, Mr. Bannerman had a fine dish of highly-coloured Barrington, Mr. Douglas a good dish of a rich orange-coloured red-marbled variety, resembling Crawford's Early, and named Exquisite, and Mr. Harris a highly-coloured dish of Royal George. Mr. Allen staged an excellent dish of the new Princess of Wales, a large but pale fruit, said to be of very superior flavour; an extra second award was also given to Mr. Ansell for a dish of Grosse Mignonne, excellent in quality. Thirty-six dishes of Peaches were staged, many of them above average merit. A dish of Princess Victoria Nectarines, excellent in every way, occupied the first place among some thirty dishes staged; the individual fruits in this dish were very fine, being fully 2½ inches in diameter, and well coloured. These came from Mr. W. Tillery, of Welbeck. The second and third prize dishes consisted of Violette Hâtive and Elruge, of fair quality.

Apples.—These were represented by twenty-five collections of kitchen Apples and twenty collections of dessert kinds. Mr. Murrell, of Prittlewell, Essex, was first with splendid examples of Alexander, Cox's Pomona (very fine), Beauty of Waltham (well coloured), and Lord Suffield. Mr. Radcliffe had Early Marie (fine), Counsellor, New Hawthornden, and Lord Suffield. Mr. Jones, Carshalton, received an extra second award for Lord Suffield, Hollandbury, Dutch Codlin, and Alexander, all large and well coloured. In the class for dessert Apples Mr. R. Webb, of Calcot, was first with fine dishes of Astrachan (a deep red Apple covered with a rich bloom), Quarrenden, Sweet Julien (well coloured), and small examples of Cox's Orange Pippin. Mr. Hodder was second with Jefferson (well coloured), Kerry Pippin, Cox's Orange, and Quarrenden. Among other varieties staged we noted Summer Golden Pippin, Cellini Pippin, Beauty of Oldenburgh, Nonesuch, Early Harvest, King of the Pippins, and others.

Pears.—These were represented by excellent dishes of fine fruit. The first prize for three dishes was awarded to Mr. Neighbour, who had Williams's Bon Chrétien (highly coloured), Louise Bonne of Jersey (large in size), and excellent fruits of Beurré d'Amanlis. Mr. Sage was second with fine Jargonelles, Williams's Bon Chrétien, and a fine dish of Fondante d'Automne. About eighty dishes of Pears, in all, were staged, and among them we noted the following varieties:—Gratioli (a large russetted fruit), Thompson's highly-coloured, and otherwise excellent, Beurré Goubalt, Beurré Près d'Artois, Marie Louise (good in several cases), Beurré Capiaumont (highly coloured), Hessle (very fine), Souvenir du Congrès, Gansel's Bergamotte, and Beurré Hardy.

Plums.—Of these no fewer than thirty-seven collections were exhibited, each collection consisting of three dishes. Among the varieties staged we noted good dishes of the following:—Washington, one of the most handsome of culinary varieties, yellow, suffused with rose; Jefferson, a very fine yellow kind, dotted and streaked with rosy-purple; Black Diamond and Victoria, the last a large red kind, well known; Greengages, highly coloured, and otherwise very fine; Kirke's, sometimes named Dove Bank, a large purple kitchen Plum, with a heavy blue bloom Belgian Purple, Goliath, a fine, large, roundish, purple Plum, covered with a dense blue bloom; White Magnum Bonum, and others. The first prize was awarded to three fine dishes of Jefferson, Kirke's, and highly-coloured fruit of Washington, from Mr. G. Sage. Mr. Holder was second with Guthrie's Striped Gage, Jefferson, and Washington. Mr. Jones third, with Washington, Kirke's, and good Jefferson's, highly coloured. Mr. J. Douglas had three fine dishes of Transparent Gage, a delicate waxy-looking variety, with a heavy white bloom; Bryanston Gage, and Jefferson's, the perfection of ripeness.

Melons, Figs, and Cherries.—About thirty-six Melons were staged in both classes, the best scarlet-fleshed variety being a good specimen of Read's Scarlet-flesh, from Mr. C. Pitt. Mr. Harris, being first in the green-fleshed class with Beechwood, an old-fashioned variety, with a green coarsely-netted skin. Mr. Sage had an extra prize in this class for a perfect and highly-flavoured fruit of Colston Basset seedling, a yellow wax-like fruit, delicately netted. Figs were represented by eight fine dishes, the first prize being awarded to a splendid dish of Brunswick from Mr. Chisholm; the second and third groups consisting of Brown Turkey—large, well-ripened fruit. Of Cherries, seven dishes were staged; that to which the first prize was awarded came from Mr. Sage, of Ashridge, and consisted of splendid Morellos, large and highly coloured. Mr. Miles, of Wycombe Abbey, had also fine fruit of the same variety.

Miscellaneous Fruits.—Mr. W. Paul, of Waltham Cross, had a fine collection of Apples and Pears, each variety correctly named; eight fine dishes of hardy fruits, including good Jargonelle Pears, Jefferson Plums, Dove-bank or Kirke's Plum, Violette Hâtive Peaches and Nectarines, Apricots, and good Quarrenden Apples. A fine dish of Pond's Seedling Plum came from Mr. Fanny, Roehampton, and a good dish of Early Admirable Peaches from Mr. Harris. Mr. J. Gleat, gardener to Mrs. Bailey, Central Hill, Upper Norwood, furnished a fine collection of Apples, Pears, Plums, and Gourds, all in excellent condition, especially some Emperor Alexander Apples, which were of very superior quality. Mr. Wells, of Calcott, near Reading, sent a collection of Cob Nuts and Filberts.

Vegetables.—Of these some good collections and single dishes were exhibited. Onions, in one or two cases, were very fine, Cabbages and Turnips were likewise good, as were also Carrots, and Cauliflowers. With Potatoes, Mr. Inwood was first with good Snowflakes.

East London Forests.—Tradition says that the great forest of Waltham came up to the very walls of the city of London at its east end. To this immense woodland tract the forests of Epping and Hainault belonged. Of Hainault, which extended eastward from Chigwell Row, but little trace remains. It was disafforested in 1851; the timber has for the most part been cut down, and ploughed fields now replace sweet woodland glades which were the resort and solace of many Londoners even within living memory. Epping Forest still remains in much of its old wildness and beauty, though shorn of its old proportions. According to a perambulation made in the 17th of Charles I., the forest boundary started from "the bridge of Stratford called the Bow, under which runs the river Lee." At Bow Bridge, therefore, and within 2¼ miles of the Royal Exchange, the leafy glories of Epping Forest then began, and Cockney sportsmen of the day could there sound the cheerful horn, and on Easter Monday start their famous Epping Hunt.

Fruit in Pre-historic Times.—Carbonised Apples of small size, identical with those growing wild in the woods of Switzerland, have, according to "Harper's Magazine," been found abundantly in lake bottoms, and in a tolerable state of preservation. Mr. Messikommer discovered on one occasion more than 300 of them lying close together. They are often cut in halves, more rarely in three or four parts, and were evidently dried for consumption during winter. Whether a larger kind of Apple found at Robenhausen was cultivated, or a wild-growing species, remains undecided. Professor Oswald Heer, of Zurich, who has published an interesting work on lacustrine vegetable remains, inclines to the former view. Wild Pears were treated in the same manner; but they are far less common than Apples, which must have formed a much-sought article of diet. Among other vegetable remains accumulated in the lake mud may be mentioned Hazel Nuts and Beech Nuts, both in great plenty; also Water Chestnuts, which doubtless were collected and eaten by the lake-men, as they are in Upper Italy at this day. Their present occurrence in Switzerland appears to be restricted to a tarn in the canton of Lucerne. There have further been found abundantly the stones of Sloes, Bird Cherries, and wild Plums, and seeds of the Raspberry, Blackberry, and Strawberry, showing that these fruits of the forest were used as food. According to Dr. Keller, the lake colonists of the Stone Age drew their sustenance chiefly from the vegetable kingdom. Their animal food evidently was acquired by hunting rather than by the breeding of cattle, considering that in the accumulations around the piles the bones of wild animals outnumber those of the domestic species. Milk, we may assume, formed an important article of their diet.

Pearson's Golden Queen Grape.—Mr. Ruding (see p. 200) will be disappointed if he plants Pearson's Golden Queen to fruit in his early Vinery. It is a late Grape, and should be associated with Lady Downes and Alicante rather than with Hamburghs and Frontignans.—J. Muir.

Spiræa venusta.—Lovers of hardy flowers should take care to have a few tufts of this graceful variety in their collections. In Mr. Sim's nursery at Foot's Cray we noticed tufts of it nearly 6 feet high. It enjoys and deserves a deep rich soil, and is a far nobler plant than the newer Spiræa palmata.

Paddington Flower Mission.—Supplies of cut flowers from the country are received on Thursdays at 3, Leinster Street, Cleveland Square, W., and distributed in bunches to from fifteen to twenty Hospitals, Infirmaries, and Homes, as well as to many of the suffering lonely poor, who are gladdened by their sight and smell. Funds are urgently required to carry on the work during this month and next.—A. L. B.

The Early Rose Potato.—An interesting fact in reference to this Potato was communicated to me by a farmer the other day. He said:—"When Early Rose Potato first came out, after its productive powers had been tested, I at once bought a quantity and distributed them amongst my labourers and neighbours. The produce was in all cases large, but all of them complained that they could not eat them. Many gave up growing them, but one of my men did not, and each year he noticed they were better in quality, till, the other day, he said they were like balls of flour." The Potato has, in fact, only just become acclimatised. Has anyone else noticed this?—N. H. P.

The Golden Pippin Apple.—I have been told that this Apple is fast wearing out. Is that a fact?—J. M. [We cannot agree with those who hold such an opinion, because we have facts annually before our eyes wholly at variance with the assertion. Anyone visiting our London markets during the fruit season, and, indeed, any other large market in the southern or midland counties of England, will find Golden Pippins as perfect and as fine as any which have been either figured or described by any writer whatever, either in this or other countries.]

Beurre Durandeau Pear.—This is strongly recommended by Belgian growers as a variety of the first merit, ripening in October and November. The flowers of this variety are said to frost better than any other kind. It is a variety worthy of extensive trial with us.

The common Butterwort in Bedfordshire.—Mr. Pollard, in the "Journal of Botany," records the finding of this plant in Bedfordshire. It grows on the steep side of a combe in the Chalk Hills.

Desmodium pendulum.—This graceful Pea-flowered shrub is quite hardy in warm soils in Kent, either on walls or in the open.—V.

Petunias.—We have received some beautifully-striped Petunia blooms from Messrs. Hender & Son, of the Bedford Nursery, Plymouth. They are seedlings of this year—fine bold flowers with white ground colours, striped and flaked with purple and crimson. Among them were also a few good self-coloured kinds.

No. 200.] SATURDAY, SEPT. 18, 1875. [Vol. VIII.

"This is an art
Which does mend nature: change it rather: but
The Art itself is Nature."—*Shakespeare.*

TREE DRAPERY.

Few objects are more beautiful than a tree over-run with some handsome climbers, which, in wild luxuriance, cover it with leaves, or blossoms. Landscape gardeners often attempt the introduction of such combinations into park or garden scenery, and sometimes with good effect, but oftener without, on account of the improper positions in which they are placed. Planting or training in a systematic way will not produce a natural effect, and there appears to be, except in the hands of a few men, no half-way; therefore, to introduce such combinations when the gardenesque style of gardening is carried out, would be out of place. But in the wild garden, the introduction of such displays produces most charming results. An Ivy scrambling over the ruins of Kenilworth is a lovely sight; but the same Ivy, creeping over a marble structure in the Renaissance style would be quite the reverse. The Virginian creeper, overtopping the tallest trees in the woods of southern Illinois, crimsoning the whole summit as with a glow of fire, in an October sunset, is a sight never to be forgotten; but the same climber over-running a Tulip tree or Magnolia on the smoothly shaven lawn, would produce no such impression. In landscape gardening, as in other Fine Arts, everything should be in keeping; no over-strained efforts should be made to produce effects which would be incongruous, for, even if beautiful in themselves, their beauty would be lost through want of fitness or propriety; yet much of this is visible, especially in town gardens. It is common in our cities to see the very small Grass enclosure, in front of our very finest architectural dwellings ornamented with a cheap rustic box or basket filled with Petunias, Verbenas, and similar plants. Our architectural taste is fifty years in advance of our taste for gardening, verifying the remark of Lord Bacon that "men build stately before they garden well, as if gardening were the finer art." Certainly, landscape gardening cannot be done with the rule and square, nor has it fixed orders. It can only be advanced, as Mr. Repton has said, by the united powers of painter and gardener. In one of our oldest and most picturesque cemeteries there is an imposing stone chapel, enriched inside with noble statuary. In front of this is a large, raised, square Grass plot, curbed on all sides by heavy granite; and opposite this is a representation of an Egyptian Sphinx, in white granite, of huge size; yet in the centre of the Grass, which is kept smoothly shaven, is a cheap rustic basket, 2 or 3 feet in diameter, elevated on a Cedar post 6 or 8 inches in diameter, and filled with the commonest bedding plants. I did not, however, intend to give you a paper on this subject, but have merely mentioned a few facts by way of introduction to a short notice which I am about to give of a little natural plantation made formally at first, but which, through neglect and time, has become an exquisite bit of scenery, well worth imitation when real, natural, and charming tree drapery is desired. Some ten or fifteen years ago we had occasion to plant three or four rows of popular climbers in nursery rows, about 100 feet long; these consisted of Ampelopsis quinquefolia, Menispermum canadense, Periploca græca, and Celastrus scandens; subsequently, it happened accidentally that four rows of rather large Tartarian (so-called) Arbor-vitæs were planted one side and about the same number of rows of Smoke trees, Philadelphus, Cornus florida, &c., on the other. For three or four years many of these climbers were taken up annually until rather too old to remove, and year by year the Arbor-vitæs and shrubs were thinned out until what were too large to safely transplant seemed to be grubbed up or bent, as is usual with evergreen trees. But the land was not wanted then, and the few scattered trees and climbers remained while cultivation was partially neglected, a large specimen being occasionally taken out until the climbers had fairly taken possession of the trees, and are now too beautiful to disturb, for it is the most unique specimen of tree drapery I have ever seen. Some of the Arbor-vitæs are entirely overrun with the Menispermum, whose large, roundish, slightly-scalloped leaves overlap one another from the ground to the top like slates on a roof. Over others, the gloomy leaves of the Periploca scramble, and also the Celastrus, and on still others the digitate deep green leaves of the Ampelopsis completely festoons the tree; of some trees all four and other climbers have taken possession; and from among the smoky-looking tops of the Sumach the feathery tendils of the Ampelopsis, and, just now, its deep blue berries, hold full sway. And these are not all. The Apios tuberosa is indigenous and springs up everywhere as soon as our land is neglected. This has also overrun several trees, and coils up and wreaths each outstretching branch with its little bunches of fragrant brownish-coloured flowers. Another climbing plant, also common, and a thorough pest, is the Convolvulus arvensis, which fastens itself to many of the shrubs, clinging to them with a strength like that of a whip-cord, and covering them with snow-white flowers. It is the Arbor-vitæs which give the peculiar beauty of this description of tree drapery. On the deciduous trees the new growth lengthens rapidly, and the branches soon get far apart; but with Arbor-vitæs, which always present a round compact head, the effect is entirely different; they are covered so densely that it is impossible, in some instances, to say what the tree is that supports the climbers. One Hemlock Spruce (Abies canadensis) has every branch loaded with the Apios and profuse with blossoms; but this one sees happen with other trees. The Smoke tree looks interesting just now, while its flowers are fresh, but soon they will fade, and the dry tops will be a disadvantage; but the Arbor-vitæ will remain clothed with the foliage, flowers, and berries, too, of the Celastrus until the autumn frosts have shorn them of their beauty, and no falling leaves are scattered around. The Arbor-vitæ is the tree I would recommend when it is desirable to produce such effects as I have described. When such strong-growing climbers as Begonias and Wistarias take possession of a shrub they generally injure it; but the very slender stems of Menispermum and Apios, die entirely to the ground after the first sharp frost, and the slender stems of the others do not appear to arrest the growth of the Arbor-vitæs, which are restored when the climbers are down, and, after full eight months' rest, are again ready to aid in sustaining their more dependent companions. The Honeysuckle, the Clematis, and similar plants might, no doubt, be added to the list, and give more variety, as well as fragrance and beauty, but I have only detailed the effects of what has been done, leaving what might be effected, for some future trial.

Boston, Mass. C. M. Hovey.

THE ANDROSACES.

These are, perhaps, the most Alpine of Alpine plants. Other families send down representatives to the hill pastures or the sea rocks, or sunny heaths, as the Primroses and Hairbells do, but not so these. They are more Alpine even than the Gentians; for, as we have seen, the Gentians are as handsome in a hill meadow as on the highest slopes, and as Androsaces are, among flowering plants, those most confined to the snowy region, so, as might be expected, they are the dwarfest of this class. They belong to the Primrose family, and resemble it in the flowers, but even dwarf Alpine Primroses are giants to these, which, from their extreme dwarfness and compactness, might be called, for an English name, flowering Mosses. Growing at such great elevations, where the snow falls very early in autumn, they flower as soon as the snow melts. Sometimes, like some other Alpine flowers, they frequent high cliffs with a vertical face, or with portions of the face receding here and there into shallow recesses. Here they must endure intense cold—cold which would probably destroy all shrub or tree-life exposed to it. And here in spring they flower. Thus, in crossing some passes on foot in spring or early summer, while all the hills around are a waste of snow, the traveller has the pleasure of seeing these charming fairies in full bloom.

Generally, however, they have to wait till the snow disappears, and then, in every high spot, one sees the ground silvered with their cushions and gay with their modest little flowers of white, or rose, or yellow. As yet far from common in our gardens, it is, nevertheless, the aim of every lover of Alpine flowers to possess them in good health. This is not difficult where there is a properly-formed rock-garden in a pure air. They are among the plants that are almost sure to perish in a smoky atmosphere. Their small evergreen leaves, often downy, retain much more dust and soot than smoother and larger-leaved evergreen Alpine plants do. The Androsaces enjoy in cultivation small fissures between rocks or stones, firmly packed with pure sandy peat, or very sandy or gritty loam, not less than 15 inches deep. They should be so placed that no wet can gather or lie about them, and they should be so planted in between rocks or stones that, once well rooted into the deep earth—all the better if mingled with pieces of broken sandstone—they could never suffer from drought. It is easy to arrange rocks and soil so that, once the mass below is thoroughly moistened, an ordinary drought can have little effect in drying it. V.

ROSE COMTESSE D'OXFORD.

What a glorious Rose this is in autumn, and how freely and well very young plants of it bloom. About the end of last March I grafted a number of this variety, and other kinds, on Briar roots, selecting the roots a little stronger than the scions; the buds of the latter were, of course, dormant, but the Briars had just begun to move. The grafting was performed in a very simple manner by cutting a slice off the stock and a corresponding slice off the graft, and fitting and binding the two together. I need hardly say that the bark of both stock and scion must come into conjunction on at least one side. They were potted, as fast as the grafting was done, into 60-sized pots, and plunged into a propagating bed in which there was a heat of about 80°, and kept close. In less than a week the buds of many of them began to move, and in May they were hardened off and planted out, and I have not cut finer blooms all the season than I am now cutting from these spring-grafted plants. Being grafted on the roots (not the stems) of the Briars, there was no occasion to use clay or grafting wax, as, when potted, the junction was completely buried, and only about two eyes of the grafts were visible above the soil. When care is used in selecting pieces of Briar root with a few fibres attached to them, and employing only well-ripened wood for the grafts, with the buds dormant or but very slightly on the move, the percentage of failures will be small indeed. E. Hobday.

Ramsey Abbey.

The Sundew (Drosera rotundifolia).—This year I have found hundreds of this interesting little plant in the bogs here, whilst last year I could not obtain a single plant. Can any of your readers inform me how it is so many are to be found one year and none another?—James Clews, *Rockingham, Boyle, Roscommon.*

The Pink Bindweed in the Wild Garden.—The beautiful large Pink Bindweed is as hardy as the common one, and is now very attractive, scrambling through the shrubs in the wilder parts of the garden at Sheen Lodge. It is one of the most desirable plants to naturalise, but should only be placed where it can do no harm, otherwise it may prove as objectionable a weed as the common Bindweed.—V.

Wintering Lobelias.—I have found the following method of wintering and propagating Lobelias answer exceedingly well:—Select plants of the deepest colour and most compact growth, cut them down close to the ground (this should be done at once, it would have been better, indeed, if it had been done a week or two ago), and, as soon as the plants begin to shoot again, take them up and pot them; and, if well attended to during the winter, they will supply any number of cuttings in the spring.—Rusticus.

Alpine Primroses for Borders.—"Oxon," writing the other day about Primulas for a mixed border, reminds me of three of easy culture that are here very superior, and which may be safely added to any collection. The three kinds to which I refer are—pulcherrima, spectabilis, and ciliata intermedia. A great number of Primulaceæ have bloomed rather freely this autumn, especially double forms of P. acaulis, japonica, and Alpine Auriculas. Has this unusual second bloom been observed elsewhere, or is it confined to the county of—Berks?

Cottagers' Show at Latimers.—The annual cottagers' horticultural show took place last Tuesday at Latimers, the seat of Lord Chesham. This show was instituted by the thoughtful proprietor for the benefit of the cottagers and workmen on the estate and the surrounding district, and the park and grounds were thrown open to the public on the occasion. The first prizes, many of which were of considerable value, were distributed by Lady Chesham, and the vegetables exhibited were in every respect excellent. The arrangements for the show were in good taste, and were carried out under the direction of the gardener, Mr. Donaldson.—H. G.

NOTES OF THE WEEK.

—— Our readers will find an account of the great fruit show, at Edinburgh, in another column; it possesses more than usual interest from the magnificent and unexampled Grapes shown. The stern climate of the north seems to develop the best qualities of the cultivator, and thus, in Britain, finer Grapes are grown than ever were gathered in the most favourable climes. The bunches shown last week at Edinburgh by Mr. Curror and Mr. Dickson, over 26 lbs. and 25 lbs. weight respectively, are by far the largest ever recorded. The conditions under which such Grapes were grown must be of considerable interest to the fruit-growing world; and we hope soon to be able to describe them.

—— There is now a noble standard Fig tree, bearing quantities of fine fruit in the garden at Saltwood Rectory, near Folkestone; it stands in a fully exposed position. The opportunities offered for the culture of the Fig in the southern counties are not often taken advantage of.

—— Bushes of Euonymus latifolius in Osborn's nursery, at Fulham, remind one, at present, of a large form of Fuchsia globosa, the bright-coloured and gracefully-suspended fruit suggesting the comparison.

—— Messrs. E. G. Henderson have sent us spikes of the singularly showy Liatris macrostachya, over 6 feet high. It is a hardy plant of very striking character, and which we hope may prove vigorous and common enough for the wild garden some day.

—— A correspondent informs us that a well-grown bush of the fragrant Pittosporum Tobira is now full of flower in the open air, in a garden on the Lees, Folkestone. Its flowers are as sweet as orange blossoms. It is frequently grown on the Continent in tubs, which are stored in cellars or outhouses in winter.

—— Some twigs of the common Oak may now be seen growing from the stock on which the noble specimen of the Fulham Oak, in the Fulham nurseries, is grafted. It may be as well to note this, as it has been said that hybrid Oaks of this class would not thrive on the common Oak.

—— The Abyssinian Acidanthera bicolor is just now beautifully in flower in Mr. Max Leichtlin's garden at Baden-Baden. Its blossoms are produced in spikes like those of a Gladiolus; but are longer in the tube, and in colour creamy white, and feathered with maroon. It succeeds perfectly treated like a Gladiolus.

—— The flowers of Godetias, easily grown annuals from the Pacific Coast of North America, are peculiarly suited for indoor decoration. Specimens remain in good condition four or five days after being cut; the colours of the flower are seen to greater advantage indoors, and it is interesting to observe the daily opening and closing of the blooms.

—— It is interesting to notice, at this season, the noble flowers borne by the Exmouth variety of Magnolia grandiflora, on little plants from 15 inches to 2 feet high. There is a square of these small trees in the Fulham Nurseries, some of the dwarfest of which have lately been in blossom. This variety is a good one to plant as a standard on warm soils in the southern counties.

—— Lovers of Tomatoes will learn with regret that the plant is this year attacked with the greatest virulence by the Potato disease. Both the leaves and fruit are attacked, the leaves shrivelling up and the fruit rotting. It is unfortunate that this should have happened just as the Tomato was beginning to be commonly planted as a field crop in the market gardens round London.

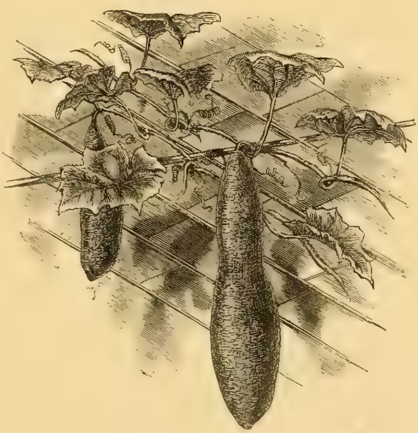
—— We have lately seen the stock of Negro Largo Fig in Messrs. Veitch's fruit nursery, and can testify to its remarkable merits as regards flavour and profuse-bearing qualities in a small state. There are many persons who do not regard the Fig as a fruit of the highest class, and who do not enjoy the flavour; but this state of things will be altered by the increase in the number of really finely-flavoured kinds, some of them of recent introduction. We think the day will come when the Fig will be valued as highly as the Grape.

—— The relation between woodlands and rainfall and other climatic conditions has of late been the subject of much dogmatic theorising. A comparison of maps in Walker's "Statistical Atlas of the United States," shows that the forests of Washington Territory are in regions having an annual rainfall of 60 inches and upwards. The magnificent forests found from Minnesota to Maine have a rainfall precisely identical with that of the nearly treeless prairies which extend westward from Chicago, viz., 28 to 40 inches. The northern part of the Michigan Peninsula, with its heavy timber, is marked with precisely the same rainfall as large portions of southern Minnesota lying in the same latitudes and nearly treeless.

THE FRUIT GARDEN.

MELON-CUCUMBERS.

Considerable interest has recently been manifested in the fruiting of Cucumber plants now at Kew, that have been supposed to be the result of a cross effected between Cucumis Melo and the Telegraph Cucumber, a well known variety of C. sativus. This presumed cross or hybrid was the more interesting to horticulturists, as MM. Legeret and Naudin have repeatedly failed in obtaining hybrids between the two species, C. Melo and C. sativus. We have carefully examined the Kew plants now fruiting in the economic-house, and the following are our notes on them, made at the time, together with the accompanying reduced representation of the plant. Stems slender, scabrous; leaves and flowers like those of the Cucumber in size, as well as in other respects; fruit from 6 to 10 inches in length, and from 2 to 3 inches in diameter, of a dull brown or russet colour, profusely dotted with whitish lines, but we observed no spines. In fact the growth and flower resemble those of a Cucumber, and the fruit that of a Melon in all external characteristics, if we except its elongated form. The female parent is the Concombre de Sikkim of Naudin, described in the "Annales des Sciences Naturelles," 4 ser., vol. xi., p. 28, as a variety of C. sativus, so that if the pollen from Telegraph has taken effect (which now seems doubtful), the cross is simply one between two extreme forms of the common Cucumber, and not a cross between the Cucumber and Melon, as the Kew label would lead one to believe. As is well known, both Cucumbers and Melons are extremely variable in size, colour, habit, and flavour; we have seen, indeed, a figure of a Cucumber of the ordinary form and a globular fruit, half Cucumber and half Melon, growing on the same branch. This was supposed to have been brought about by a Cucumber flower having become accidentally fertilised with pollen from some Little Heath Melons which were growing in the same house. In Darwin's "Animals and Plants under Domestication," we read, "that there is a race of Melons in which the fruit is so like that of the Cucumber, both externally and internally, that it is scarcely possible to distinguish the one from the other except by the leaves." Some Melons weigh as much as 66 lbs., while others are no larger than small Plums. One, not more than an inch in diameter, is sometimes more than a yard long, and twisted in all directions. Another kind, from Algiers, announces its maturity by spontaneous dislocation from the foot-stalk, after which it suddenly bursts into pieces. Major Trevor Clarke, by whom the seeds of the supposed hybrid under notice were sent to Kew, says, "This curious plant was sent to me from India as a Cucumber. The remarkable scabrous coating of the ripe fruit attracted my attention, and induced me to send it to Kew, where it was at first thought to be a Melon (Melo). It is now, however, thought to be a true Cucumber. From the appearance of the figure the Kew plant hardly looks as if the cross with Telegraph had taken effect. I have now growing here two plants from the (supposed) crossed and uncrossed seed. They have set fruit, but were late plants, and are not yet in a condition to be described. Many years ago I raised a cross between a Melon and the Snake Cucumber (Cucumis flexuosus); but the latter, I believe, ranks among the Melons. A cross, real or supposed, between a Cucumber and a Melon, was shown at South Kensington some years ago, but I did not see it. A neighbour of mine, Major Mason, of Willoughby Hall, has a plant from the 'big Pumpkin' crossed by a Cucumber. It was fertile, and is now growing for the second generation." B.



The Melon-Cucumber at Kew.

APPLE CULTURE IN THE NORTH OF ENGLAND.

The Apple is every year receiving more and more attention, both from gardeners and amateurs, in this part of the country; and I am told by nurserymen that the demand for young Apple trees has increased immensely within the last few years. This may be owing to the fact, that in many gardens the old Apple trees have been entirely superseded by dwarf trees, which answer well, but which, in their turn, are giving place to espaliers. One successful grower of dwarf trees in my immediate neighbourhood begins early in August (and even in July) to pinch back the leading shoots to within 6 or 8 inches of the old wood. I tried this plan upon some dwarf trees which I happened to have, and the result has been that before the end of August all the eyes upon the young wood broke and became shoots, every one of which I was obliged to rub off with the exception of the leading one. This is what occurred in my own case; but the result may have been quite the opposite in a different soil and situation. In our rich deep soil dwarf trees grow very vigorously; and, even after a considerable amount of root-pruning, I find it better to defer pinching the leading shoots until the vigour of the trees has been reduced. The plan of lifting over-luxuriant trees yearly, or at certain intervals, is now abandoned by many who at one time advocated it; but it cannot be denied that the whole secret of dwarf tree culture lies in a great measure in root-pruning. In the case of a barren tree I proceed as follows: early in autumn I clear away the soil carefully from its roots, lift it, cut off with a sharp knife any vertical or tap roots that I happen to find; I then fill the pit with prepared soil to within a few inches of the surface, tread it carefully down, *i.e.*, if it is not wet; upon this bed I spread out the roots to their full length, and cover them to a depth of 2 or 3 inches with fine soil, after which, if the weather and soil are dry, I give the whole a good watering in order to settle the earth among the fibres, and, if the tree is a standard, it is securely tied to a stake until the roots begin to grow, after which supports are unnecessary. The roots of a tree planted in this way may be examined at any season of the year. Some varieties grow with me so vigorously that winter root-pruning is not sufficient to retard their growth; I therefore operate on them in summer or early autumn, and with such good results that I begin to think summer is the proper season for root-pruning, except with very vigorous trees. I observe that there is a growing taste for fruit culture amongst all classes. Everyone who has an opportunity of visiting local flower shows must be struck with the size and beauty of the Apples exhibited, not only in the amateur classes but also in those of the cottagers, and anything that can be done to increase this taste among those who are fond of Apple growing, is a substantial gain to the country.

Alnwick. J. T.

COLOUR OF FRUITS NO TEST OF MATURITY.

Every season has its special lessons, if we had but eyes to see and sense to comprehend them. This being an abundant fruit year, has suggested several problems in reference both to growth and ripening. Among these perhaps the most prominent in this district has been the high colours presented by Apricots and Plums long before they were ripe. That rich golden tinge that characterises ripe Apricots in ordinary seasons, distinguished the fruit this year when they were as hard as bullets. Hence the colour test was wholly useless as an indication of maturity. Plums of various kinds showed the same tendency, colour and greenness—to use an apparent contradiction—being often linked together. The Reine Claude Violette, for example, had the richest bloom while it was as acid as a Sloe; and so in degree with most other varieties. Again, I do not find this abnormal amount of colour indicative of any unusual excellence of quality. On the contrary, Apricots here hardly reached the usual standard of flavour this year. Assuredly they have not once got beyond it. It is thus somewhat difficult to account for the excess of colour, unless it has an aqueous origin. During the first stages of approaching maturity, it rained almost incessantly. So much wet fell that the earlier Apricots began to rot on the trees before they turned soft; an unusual occurrence. Soon after this a month's dry weather set in, and immediately the fruit laid on its richest golden hues; and, while doing so, made little or no progress in ripening. Further, I noticed a most peculiar fact, and that was that the fruits with least colour not only ripened first, but best; and they had decidedly the highest flavour. It therefore seems almost possible that colour is laid on fruit sometimes at the expense of quality, of which colour is a most misleading test. It is so in Peaches. The palest Noblesse is often the most exquisitely flavoured. It is often so in Grapes. The blackest ones, if quite ripe—which they very often are not, as the black-coating loses its density when perfect maturity is reached or passed—are often also the sourest and worst-flavoured. Muscats have been held to be exceptions to this rule, but probably they are not. I once lived with a true epicure in fruits who always affirmed that the highest-flavoured and most delicate-fleshed Muscats were those that ripened green with an almost imperceptible dash of amber. I have also known a lady, who could command the best of all fruits, who often rejected Golden Muscats as hard in flesh and destitute of flavour in comparison with green ones. Take, again, that most delicately flavoured of all Grapes, the White Frontignan, now almost superseded by larger but, assuredly, not better-flavoured varieties, and can anyone doubt that it is best and highest flavoured when greenest? When it passes into a shade of amber the delicacy of the bouquet is gone. This raises the question whether colour is not only not a test of quality, but, to some extent, opposed to it. Is it possible that the pale-cheeked fruits are the best as the pale-faced races are the strongest and greatest.

D. T. Fish.

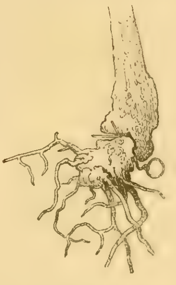
SELECTING HARDY FRUITS.

For those who contemplate planting fruit trees largely during the coming autumn and winter, now is the very best time to make a choice of useful varieties. The crops are, to a great extent, still hanging on the trees, and in most instances the varieties which suit the localities proposed to be planted can be readily decided upon. The habit of the varieties can now be judged of, their cropping qualities inspected, and a general estimate of their value arrived at, which is not possible in winter, although this subject is too often left till that season before it occupies attention. It is not always advisable to trust to a catalogue for a selection. Many of the choicer fruits are not the very best bearers, and it is better to have plenty of fruit, even if it be not of the very choicest kind, than to meet the winter with half empty shelves; this, at least, is true in the matter of Apples and Pears. The planting season may commence early next month and continue to the end of March. If trees are bought which have been under training either for walls or as dwarf standards for two or three years, a few fruits may be expected next season off each tree if those worked on dwarf stocks are chosen. The end of last March we planted some trees of Uvedale's St. Germain and Verulam Pears, which had been four years trained; they had made a long journey, and, of course, had not a particle of soil attached to their roots; they are now bearing on an average six fruits to each, large and well-swelled as the fruits of these varieties usually are. It is, however, preferable to have all planting done by the end of November; if it be not finished then, let it be left until the end of March, provided the trees have not already been moved. I shall name a few Apples which are to be depended on in most parts of the country, and which are very striking on the trees at present, beginning with a dwarf tree of Cellini, which here is loaded to the ground, the lower branches resting on the soil, with large beautifully-variegated Apples of excellent flavour, even for dessert, but more useful for culinary purposes. A tree of Cox's Pomona, standing by its side, bears, if anything, larger Apples; but one can scarcely say which is the heaviest laden, or which has the finest fruit. Next comes a tree of Lord Suffield, the crop of which has nearly all been harvested—a very large Codlin-shaped Apple, with straw-coloured skin, to which we have twice this year awarded the prize, as a culinary kind. Warner's King is an abundant bearer, the second largest Apple we know, and is one which often takes a first prize as a culinary Apple at shows. Mère de Ménage comes next; as a kitchen Apple it is of a very large size, a peculiar glaucous red Apple, similar in shape to the last mentioned. This is a fine show Apple, and a sure bearer. Among culinary Apples we know nothing larger or better than the Dutch Codlin. Of later cooking Apples, which can be depended on north or south, are Blenheim Orange, Dutch Mignonne, and Dumelow's Seedling. The two last continued in excellent condition all the winter; and if we were confined to two varieties, we should feel inclined to make selection of them to bridge over the winter for every purpose. Among dessert Apples which bear abundantly everywhere is the Kerry Pippin. These beautiful fruits are now dropping from the trees in quantity. Another and, as regards shape and size, better Apple, and one which lasts over the winter well, is the King of the Pippins. In form it is very perfect, looking as though turned out of a lathe, and it is beautifully coloured. We cannot pass over the high-coloured Devonshire Quarrenden; the only two others we shall mention are the Ribston Pippin and Cox's Orange Pippin, and we have always had a doubt which of these is most deserving of the palm; only the first excels as a keeper. Among Pears we shall begin with one which is too seldom planted and which bears equally well in the extreme north as in the south—the Autumn Bergamot, which is a delicious fruit. Then, of all the Bon Chrétien kinds that of Williams is by far the best, and, at this moment is the attraction of all the hornets, wasps, and blue-bottles of the garden. Beurré Bosc is always loaded with its long brown fruits, the trees presenting a very beautiful appearance. Marie Louise is a green companion to the last, both turning to their own peculiar yellow when ripe. Urbaniste, and the well-known Duchesse d'Angoulême, are of fine appearance, though not always melting; Crassane is delicious, though not unusually prolific; so is Fondante d'Automne; and, among the Beurrés, none is superior in every good quality to that of d'Aremberg loaded as a standard. Beurré Diel has a character in all respects excellent. Beurré Capiaumont, always loaded, and always good to eat, but of small size; Chaumontel, Bezi de Caissoy, of fine shape, and russetty, like Beurré Bosc, small, but a great cropper and fine Pear as a standard; Huyshe's Victoria, of a green colour, also a finely-shaped Pear; Suzette de Bavay and Easter Beurré, for late use; Ne Plus Meuris, of ungainly shape and colour, but a fine-melting late Pear when well ripened; with Gansel's Bergamot and Glou Morçeau may complete the list. Of Plums still hanging, there are Coe's Golden Drops on the walls, which yet defy the sun's influence to soften them. Prince of Wales is very prolific, rotund, and inclining to corpulency, of a purple colour, and short on its stalk. Victoria, as a standard, is one of the brightest and best of Plums for the kitchen, and never fails. Kirke's Plum is the best of purples, and is always prolific on the walls. Of the Gages, the old Greengage is still the best; but the Transparent Gage is one of the richest. Reine Claude de Bavay, also of the Greengage class, is excellent. In making fresh plantations in orchards, Rivers's Prolific and Early Favourite should never be forgotten; they are Plums that may be depended on for bearing, and are the very earliest. White Magnum Bonum is always wanted for preserving, and the Damson for Damson cheese.

Of Cherries we have three favourites, namely, Bigarreau, May Duke, and Tartarian, to which may be added the Downton and Black Eagle. The Morello is always in demand for bottling and cooking; and, when well ripened and fine, is not to be despised for dessert. Of Peaches Grosse Mignonne is still a favourite show fruit for size and colour, and is still being gathered; Stirling Castle and Barrington, Late and Walburton Admirable, are now coming in, and are trustworthy Peaches. Lady Palmerston and Salway are still green, and, of course, the latest of all. Pine-apple Nectarine is the best at present; Murrey and Balgowan both strong-growing, large, and finely-coloured fruits. The names comprised in this list are those that are to be recommended as useful fruits. Trees should be selected which have not been cut back, say, two years from the graft or one year if maiden trees are wanted; of course, this does not apply to trees which are trained as bushes and pyramids. Clumsy cutting, which leaves dead snags in the trees, is sure to induce canker in the long run; fortunately, this is the exception, and not the rule, in most nurseries. Trees, when received from the nursery, should have a mass of fibry roots, and not a few snags. With a large, strong-grown, tempting-looking tree it is always better to have small roots and wood of medium strength. W. D. C.

A STRANGLED GRAPE VINE.

The accompanying illustration shows the root of a Black Hamburgh Vine planted by us a few years ago, and which has never done well. This year, just after the berries commenced to swell, the entire Vine showed symptoms of decay, and the berries became prematurely coloured and useless. Our search after the cause of this disaster led to the discovery of a piece of stout wire tied round the stem just above its junction with the roots, and so firmly embedded in the wood as to almost altogether arrest the circulation of the sap. We have seen branches of wall trees strangled in a similar manner, by pulling them into their places by means of stout Willow ties; and valuable plants, fastened to stakes, often suffer from a similar cause, as also do Rose trees, to which labels are attached by means of wires; but never before do we remember to have seen a more complete case of thorough strangulation than that which is presented by the Grape Vine now under notice.



A Vine root, strangled by a wire label.

High Holborn. James Carter & Co.

Flavour of Plums on Espaliers.—Plums on espaliers are much better flavoured this season than those on walls. Jefferson, Magnum Bonum, Kirke's, and some others, are also double the size on espaliers that they are on walls. In order to secure fruit of first class quality, the spurs should be an inch or two long, so that the Plums may hang between the wires, clear of the foliage, and have plenty of sun and air. When the roots are long and gross, and not fibry, the fruit is sure to be more or less acid; but, when they are kept near the surface by means of good mulchings of rich material, fruit of superior quality may be expected. A number of espalier trees here, lifted out of the cold sub-soil, and liberally dressed with old Vine-border soil, have given great satisfaction for the last two seasons. The short natural spurs which they form is a sure indication that there is abundance of rootlets within the reach of solar heat. Now is an excellent time for cultivators to examine the roots of all trees which have yielded indifferent fruit. They should be cleared from the sub-soil, and the surfacing should be put on, at least 6 inches, after the old inert soil has been removed.—M. Temple, *Blenheim.*

Want of Flavour in Orchard-house Fruits.—"W. H. M." (see p. 224) complains of the lateness and want of flavour of his Peaches, and states that his orchard-houses have not answered his expectations. Fruits in orchard-houses generally are later than usual in ripening this season, a circumstance doubtless due to the cool nights and sunless days which we had in July and in the early part of August. As regards want of flavour, that may be due to several causes, foremost amongst which may be cited over-cropping, too much water during the ripening season, and deficient ventilation. A badly-ripened Peach is no better, indeed, hardly so good as a quickly-grown Turnip. A Peach may be juicy and melting, yet almost flavourless. When the fruit begins to ripen the watering-pot should be used with caution. I do not mean that the trees should ever be allowed to flag from want of water; but, where water is given as freely during the ripening period as during the growing season, I should expect the fruit to be deficient in flavour, especially if the pots are plunged. Care in watering and abundance of ventilation, night and day, will generally secure well-flavoured fruit, if the trees are clean and healthy. Good results are frequently obtained from growing trees in pots, but it involves more labour and far more care and watchfulness to secure a satisfactory result than when the trees are planted out permanently in the border of the house.—E. Hobday, *Ramsey Abbey.*

Wasps and Tomatoes.—I have an orchard-house filled with Grapes and Peaches, the fruit of which was formerly much injured by wasps, which abound in my vicinity. I used to have soda-water bottles, half filled with beer and sugar, suspended all over it; and, although these said bottles were always half full of dead wasps, yet they continued numerous, and did much mischief. Last year I had Tomatoes planted early in the border, and we never saw a wasp in the house, summer or autumn. This year the Tomatoes are again growing there, and no wasps are present. My gardener says that he has long been acquainted with the practice, and has never known it fail. He says that even in the open air a few Tomato bushes at the foot of a fruit wall will greatly protect the fruit. He thinks that the wasps object to the rather penetrating odour of the Tomato bush. The remedy (if such it may be called) is certainly very simple, and, as shown above, appears to be efficacious.—Henry Bennet, in "Gardeners' Chronicle."

Fruit Trees as Decorative Subjects.—I can fully bear out what Mr. Fish says (see p. 223) on the fitness of fruit trees for the decoration of small and, for that matter, large gardens. Having had some little practice in laying out and planting suburban gardens, I can say, with pleasure, that where fruit trees have been used the effect is far better than where ornamental shrubs and trees have alone been planted. I can especially refer to two or three places where the effect is far above the average. In one place, a long straight bank of shrubs, facing the south, and looking as formal as a brick wall, had to be improved, and it was proposed that other straight lines of shrubs should be added, to take off the uniformity of the arrangement, a proposal which I declined to carry out. I suggested an irregular outline of evergreen and flowering shrubs, with an occasional Apple tree, either dwarf or standard, as the case required, a plan that was carried out, and now the effect is all that could be desired—in fact, it is so much better than the straight lines that the owner proposes planting the opposite side in a similar manner. In another place, a kitchen garden is arranged with pyramidal Apples and horizontally-trained Pears alternately round the quarters, and, while the trees do little harm to the vegetables, they are a source of beauty to the garden. When they are in bloom they are very showy, and, when the fruit ripens, profitable. The Apples are on the Paradise and the Pears on the Quince stocks, both of which tend to keep the trees small and in good bearing condition. I would recommend all planters to use fruit trees in a judicious manner amongst other things, and I feel certain that such combinations will give every satisfaction.—W. J. May.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

The Transparent Gage Plum.—My fruit of this Plum, though fine, is not as yet quite ripe, and therefore is not speckled, as it should be, with blotches of red; nor is it so transparent as it ought to be. Nevertheless, it cracks already, the wasps are in every specimen, and I am afraid this will prove to be the fault of this otherwise finest of all Plums.—W. Roden, *Kidderminster*.

Diseased Pears.—Can any of your readers suggest a remedy for a disease with which some of my Pear trees are affected. It appears to be a black fungoid growth on the outside of the Pear, which seems to dry up its juices, and causes it to crack and become worthless. The trees affected are pyramids on the Quince stock, of about twelve years' growth, which make very little new wood. The sorts are Bergamotte d'Esperen, Beurré Diel, and Beurré d'Aremberg.—N. S.

Mitchelson's Plum.—This useful Plum, or New Damson, as some call it, is quite first-rate this year, and a splendid Plum for tarts, for preserving, or for making jelly in lieu of Red Currants, when that crop runs short. They are now getting ripe. Market gardeners in some districts make quite a little fortune out of this Plum.—W. Roden.

Golden Pippin Apple.—For this has doubtless often been substituted the Yellow Ingestre, a dessert variety, well known about London, and in great request. It bears considerable resemblance to the Golden Pippin in shape and colour, and in the habit of the tree; but the flesh is softer than that of the Golden Pippin, and the skin is free from russetty spots—in short, a rich pale yellow. When well grown, the fruit of this variety is of medium size, conical, and handsome, and, in conjunction with Juliens, Manks Codlins, King of Pippins, and Wellingtons, is one of the sorts met with in every market garden. —A. Dean.

FLOWER GARDENING IN VICTORIA PARK.

This East-end park is now well worth a visit, the sub-tropical and carpet-bedding plants being just at their best, and it is not too much to say that the whole place is considerably improved since we noticed it two years ago. The late wet season has not much improved the colours of the ordinary bedding plants, but here we must not complain, for what we have lost in floral brightness has been amply repaid, inasmuch as both turf and trees are fresher and greener than they otherwise would have been. At Victoria Park we have plenty of bright colour; and some very cleverly-arranged glimpses of Willow and Alder-fringed water-margins add not a little to the beauty and, consequently, to the enjoyment of this East-end garden. Evergreens generally are not to be recommended as suitable for town gardens, but Hollies would seem to be exceptions to the general rule, if we may judge by the occasional noble specimens which not only live but luxuriate here. The attractive shubbery borders here are well worth more than a passing notice, and those who rail against mixed borders can never have seen them well or even judiciously managed. Here at Victoria Park they are really well arranged; indeed, it is not too much to say that they are the best examples of this kind of gardening to be found in our London public gardens. We know how attractive herbaceous and mixed borders are in the spring, but it is very rarely we see them well filled or effective in August; here they are not only well kept, but present a great variety of form and colour to the eye, and carry it pleasantly from the masses of decided colour in the beds to the shrubs, trees, and sky line, without the transition being too sudden. We cannot pretend to give the names of half the plants used so naturally and judiciously in these borders, but the following may serve as a guide to what is effective late in summer and autumn. Dwarf Tropæolums, yellow, scarlet and velvety crimson, are now very bright along with clumps of Calceolarias, Verbenas, and Pelargoniums of various colours, and Mignonette in great patches diffuses a most agreeable odour. Dahlias, Love-lies-bleeding, French Marigolds, Larkspurs, and Helichrysums, of the bracteatum section, are also very gay, with Lobelias, Heliotropes, Phlox Drummondi, Viscaria oculata, and other annuals. These are backed by Sunflowers, Tobacco plants, great clumps of Riband Grass, and tall-growing Dahlias, whilst some of the weak places among the shrubs are cleverly filled with irregular belts, clumps or isolated tufts of Helianthus tuberosus. On another strip of border, are presented another class of subjects. Here we find yellow Violas and blue Lobelias, clumps of Gladioli a yard high (with splendid spikes not yet, however, open), Canterbury Bells, and great masses of the blue Virginian Spiderwort, Snapdragons of various colours, blue Delphiniums, Lupins, Pinks, Stocks, Eschscholtzias, Sweet Williams, and tufts of Spiræa. One of the most effective of all the border plants employed here is Helianthus multiflorus, which forms great clumps a yard or more in height and profusely covered with double golden Dahlia-like flowers contrasted with clumps of rose-crimson and white Herbaceous Phloxes, dark velvety-maroon-coloured Dahlias, Castor-oil plants, Lilium chalcedonicum, Riband Grass, and scarlet Gladioli, especially those of the Brenchleyensis kind. Noble beds and masses might be formed, with the common material just named, if used in quantity either in beds, borders or irregular masses on sheltered portions of the lawn. Tritoma Uvaria and Pampas Grass might be added with grand results. In the spring months most of the borders here are gay with Hyacinths, Tulips, Crocus, Narcissus, Scillas, and other early flowering bulbs; and a very effective display of Foxgloves is just now over. Few hardy plants are more stately or attractive than these are for shubbery borders in the summer, the white varieties looking very beautiful contrasted with the green shrubs and deep Conifers.

Carpet Bedding.

This style of bedding is well carried on here, and is peculiarly suitable to our climate, since frequent showers keep foliage plants fresh and clean, while flowering plants lose much of their beauty in wet seasons. Again, the colours of foliage plants are softer and more pleasing, as well as more permanent, than those of bright-coloured flowering plants. Of the carpet beds that this season are the prettiest, no description can at all convey to the mind a good idea of their form or arrangement, especially in the more complicated designs. The large scroll beds this year are very attractive, the colours being bright and distinct, while the judicious use of strong-growing succulents, such as Echeverias and Sempervivums as central plants in each panel adds very considerably to the general effect. The best scroll bed is backed by an irregular group of nine circular beds—eight of them being planted in duplicate as pairs. The largest bed at the back of this group is 10 or 12 feet in diameter. The centre of the bed is planted with Alternanthera amœna spectabilis, divided into four quarters by a cross of Cerastium tomentosum, while a narrow-shaped panel of Pyrethrum Golden Feather occupies the centre of each of the crimson panels so formed. Around the margin of the central mass is a line of golden Mesembryanthemum cordifolium variegatum, then a line of crimson Alternanthera, the whole neatly margined with a single row of the bluish Echeveria secunda glauca. This is a most effective bed, so far as colour is concerned. The next pair of beds are arranged in a stellate manner, and are so simple and pretty, that they are well worth adopting as models by future planters. It may be remarked that the effect of the last arrangement described was obtained by planting bluish-white and golden-foliage plants on a crimson ground; while here the reverse is the case, velvety purple Coleuses and crimson Alternantheras being arranged on a golden ground. These beds are perfect—that is, as perfect as geometrical planting and careful clipping can make them. Nearly all the plants used in carpet bedding bear clipping well, and this is especially the case with Pyrethrum Golden Feather, Alternantheras, Cerastiums, Golden Chickweed (Stellaria graminea aurea). Iresines and Coleuses are better when pinched than when cut with the shears, as a leaf is often severed. One of the circular beds here is planted in the centre with a mass of Pelargonium Robert Fish, a golden-leaved variety and dwarfer in habit than Crystal Palace Gem. This is margined by a belt of the deep purple Iresine Lindeni then a row of the silvery Antennaria tomentosa, the whole being edged by a double row of Sempervivum calcareum, a dwarf green rosette-habited plant with deep green purple-tipped leaves. It is often met with in gardens, as an edging to carpet beds, under the erroneous name of S. californicum. Another very effective bed, similar in shape, is planted with the silver-margined Pelargonium Queen of Queens, surrounded by belts of bright claret-coloured Amarantus and Golden Chickweed, the whole being margined with a double row of the elegant little emerald rosettes of Sempervivum montanum. Two pretty beds, each about 12 feet wide, are planted with a mass of Coleus Verschaffeltii in the centre, surrounded by a ring or line of the golden Mesembryanthemum cordifolium; then come six semi-circles of Cerastium tomentosum, then belts of Golden Chickweed and Lobelia pumila grandiflora, the latter over-grown and green, as it is invariably, this season, elsewhere; the whole arrangement margined with a double row of Sempervivum calcareum. Succulent plants, such as dense growing Echeverias and Sempervivums, form neat and effective edgings to flower beds of all kinds, as they contrast well with the green turf; but there is some little danger of their importance being over-rated. Indeed one expects to see nearly every flower bed edged with Echeveria secunda glauca, just as nearly every bouquet is garnished with Maiden-hair Fern. Good specimens of carpet bedding occupy positions on the turf. These borders may be described as belonging to the subtropical department; and we may here remark that one or two good carpet beds, backed by graceful foliage plants, and surrounded by turf, are far preferable to a large design planted in this style. As seen in designs, carpet beds have a flat and monotonous appearance, their only attraction being bright colour, and colour is only one of the many elements of beauty in a flower garden, the best style of arranging bedding plants being that one which will show us the grace and beauty of the plants in their most attractive forms, and so disposed that individual beauty is brought out more strongly by judicious contrast. A single bed of scarlet and white Pelargoniums, or a small carpet bed, is often quite sufficient to light up a sheltered nook on the lawn, or a bay partly surrounded by dark-leaved evergreens; and isolated beds in such positions please us far more in proportion to the materials used than large complicated designs. One of the attractions of carpet bedding is the great variety of design which may be indulged in. No two beds need be exactly alike, either in pattern or the arrangement of the materials. The multiplication of geometrical forms may be practically unlimited; and, if we take only ten plants, a very simple rule of arithmetic proves that they can be arranged in no fewer than 3,628,800 different ways even in the same design.

Sub-tropical Garden.

The sub-tropical garden is one of the most interesting features in Victoria Park, and is divided from the more exposed portions of the park by irregular banks and masses of sheltering trees and shrubs, through which glimpses of the Willow-fringed ornamental water are now and then obtained. The sloping banks are clothed with Box, creeping Ivy, and other evergreen trees and shrubs, spaces being here and there carpeted with dwarf Sedums, mossy Saxifrages, Mesembryanthemums, Portulacas, and other low-growing succulent plants, which serve as a carpet on which Aloes, variegated Agaves, Yuccas, Palms, Ferns, and Dracænas, show themselves to the best advantage. Some large fan-leaved Palms are introduced among the evergreen shrubs with excellent effect, and a specimen of Pavia macrostachya, at the time of our visit, was flowering profusely, its slender cones of white flowers standing out clear and bright from a background of dark palmate foliage. As a late-flowering shrub or small tree it well deserves a place in every shrubbery border. One of the greatest charms possessed by this irregular style of gardening is the immense variety of plants which may be used. Here, for example, on a few yards of sloping border two or three hundred species of plants might easily be counted. Sedum acre forms bright green tufts, and bears a profusion of golden flowers every season, and a dense carpet of this and other hardy species is jewelled with little specimen Aloes, Gasterias, Haworthias, Echeverias, variegated Yuccas, silvery Stachys, Antennarias, and Santolinas, glaucous Pachyphytums, blue Kleinias, and green and variegated Sempervivums, the back ground being devoted to taller-growing subjects, such as Castor-oil plants, Cannas, Dracænas, Acacia lophantha, Aralias, and other graceful sub-tropical plants. Most shrubbery borders are characterised by a flat monotonous surface, but excellent effects have been obtained here by throwing up the ground irregularly, so as to give variety to the surface; and a mixed style of planting having been adopted it will be seen that this plan is capable of affording a great variety of form and colour according to the plants used. One or two of the beds here are margined with dwarf plants of Amicia Zygomeris, a little known but effective Mexican plant belonging to the Pea family. It has pinnate leaves, the leaflets being obcordate in form, and of a bright green colour. The large pale yellow flowers are produced in autumn, but it is as a distinct and effective bright green-leaved foliage plant that it is most likely to be valued in out-door gardening. The flat-topped Sempervivum tabuliforme is here used very effectively as a dot plant in carpet-beds and scrolls, and also for mixed beds and borders of succulent plants. It does not appear to be generally known that the old leaves readily form young plants when placed as cuttings into pots of sandy soil. A border, made this year as an experiment, is carpeted with dwarf succulents, among which are interspersed a few of larger growth, flowering plants being added here and there for colour. Some isolated beds of sub-tropical plants here deserve notice. They are principally elliptic in shape, and the plants are, in most cases, vigorous and healthy. One, planted in the centre with a mass of the purple-leaved Ricinus Gibsonii, is very attractive, and is margined with a belt of the silvery-spined Herring-bone Thistle (Chamæpeuce diacantha) and a marginal edging of the variegated Colt's-foot. This last-named plant is very bright and distinct as an edging plant, if planted afresh every season, otherwise it is apt to come up in a most erratic manner. It well deserves a place in mixed borders and on sloping banks in the wild garden; its golden-edged foliage stands out clear and bright when contrasted with green-leaved plants, such as hardy Ferns and clumps of Coleus or purple-leaved Iresine. A bed of the Coral plant (Erythrina Crista galli) is making good progress, and is neatly edged with a row of the dwarf-growing variegated Fuchsia Golden Meteor. A bright and distinct bit of ribbon border here is planted behind with a row of the glossy-leaved Ficus elastica, then a row of Cannas, with examples of the Tobacco plant dotted here and there at intervals, then a row of the rufus-spined Chamæpeuce Cassabonæ, or smaller Herring-bone Thistle, the whole edged with Echeveria secunda glauca. An oblong bed of the distinct-looking mealy-leaved Solanum argenteum, on a carpet of golden Chickweed, is effectively margined with a belt of velvety-purple Coleus, and makes a most charming combination; while, opposed to this, is a similar bed of Cannas, then a bed of Herring-bone Thistle, with an edging of Santolina incana. Several larger beds of mixed sub-tropical plants deserve notice, and these are planted with Cannas, Tobacco, Palms, Dracæna australis, Grevillea robusta, Acacia lophantha, Aralias, variegated Maize, and other suitable plants of distinctive habit. The sub-tropical walk here is well contrived, so that different views of bed and water margins are obtained from various points; and some clumps of Yuccas, planted on the slopes, being now ornamented with their noble spires of waxy blooms, add considerably to the general effect. Yuccas are beautiful anywhere, but especially so when massed irregularly on sloping banks, and backed by glossy-leaved Laurels, Hollies, and other evergreens.

Castor-oil Plant.

Designs and Ribbon Borders.

The large semi-circular group of bedding plants near the centre of the park is, this year, very effective, although some of the flowering plants employed show traces of having suffered from the heavy rains last month, just as they have, indeed, everywhere else. A pair of circular beds here deserve more than a passing notice, and may serve as models well worth repeating another season. The centres of these beds are planted with a silvery-margined Pelargonium, named Queen of Queens; and Viola Blue King, mixed with a belt of crimson Alternantheras, and an edging of the dwarf-growing Golden Chickweed comes next. No description can do justice to the brightness of these beds, the contrast between the silvery-leaved, scarlet-flowered Pelargonium and the bright purplish-blue Viola being most marked. This Viola is by far the best we have seen used in any bedding arrangement, and is well worth looking after as the most effective of all blue-flowered bedding plants. The central or key-bed in this semi-circular arrangement is also well planted. In form, it is a fan-shaped trefoil, and a block of Pelargonium Vesuvius, one of the best of all the scarlet varieties, occupies a triangular space in the central division, while a mass of the Pink Christine occupies a similar position in each of the lateral ones, all these blocks being surrounded by a broad belt of the silver-margined Queen of Queens, with which is contrasted a line of Iresine Lindeni, then a row of the dwarf golden-leaved Pelargonium Robert Fish, the whole being edged with a double row of Echeveria secunda glauca. The junction of the three fan-shaped divisions is occupied by a diamond-shaped panel of Coleus Verschaffeltii Improved, the bright velvety-crimson tint of which is admirably brought out by the silvery foliage of the variegated Pelargonium. This bed is one of the best we have seen this season, many of the other beds of which it forms the centre being, however, very attractive. Amongst the Pelargoniums grown here, the following are used by the thousand, and cannot be excelled where quantity and undoubted quality are alike required:—Vesuvius, scarlet, and one of the best of scarlets; Nimrod, Lucius, Waltham Seedling, a rich deep scarlet, belonging to the dark-zoned nosegay section, the flowers being large and of good substance; Christine and Mrs. Turner, with Amaranthe, are good pink varieties; Queen of Queens and Bijou are bright silver-margined varieties with scarlet flowers, useful alike either for edgings or masses; while the best golden-leaved varieties are undoubtedly Crystal Palace Gem and Robert Fish, which is rather dwarfer than the last, and makes capital belts and margins along with Perillas, Coleuses, or Iresines; Creed's Seedling is another golden variety used here with much success. Calceolarias generally have looked rather weedy. One or two beds here, however, are fresh and healthy, and are blooming freely without any signs of weakness, and these were cuttings struck and planted out in a very young state; while superior plants, of which great care had been taken, and which were far stronger when bedded out, have failed entirely. Several circular beds of mixed Verbenas alongside the walk leading to the Holly mound struck us as being very effective. The varieties were Nemesis, scarlet; Purple King; Mrs. Halford, white; and Sportsman, a bright rosy-pink variety. These were blooming very freely, and were neatly margined with a belt of the Golden-leaved Mesembryanthemum, which is one of the cleanest and brightest of all golden-leaved edging or carpeting plants. The circular border around the Holly mound is this year very effective, being planted in a chain pattern. The materials used are Coleus Verschaffeltii, then a row of the golden-leaved Pelargonium Crystal Palace Gem, succeeded by rows of Vesuvius and Queen of Queens. This border is separated from the Hollies by a low hedge of Aucubas, a few strong-growing plants of Maize, Castor-oil, and other sub-tropical plants being dotted in among the dark-leaved Hollies with excellent effect in front of the Aucubas; a row of Perilla serves as a background for alternating triangular clumps of Pelargonium Christine, Madame Vaucher, and Vesuvius. The triangular panels in front are Lobelia pumila grandiflora and L. p. magnifica planted alternately. The last-named variety is the best of the whole section, forming dense rosettes of deep blue flowers, and it is destined to supersede all others of the pumila section. This effective arrangement is fringed in front by a belt of variegated Mesembryanthemum, the soft yellow tone of which shows well against the deep blue Lobelia, the whole being finished off with an edging of Echeveria secunda glauca. Another border here, which partly surrounds a clump of evergreen shrubs is very effectively arranged. Next the shrubs is a belt of the pale blue Ageratum mexicanum, and in front of this the following materials are arranged in semi-circular lines or segments, the centre panel being Centaurea ragusina, then double lines of the deep scarlet zonal Waltham Seedling, and golden-leaved Crystal Palace Gem contrasted with a belt of Coleus Verschaffeltii, which is, in its turn, again contrasted by lines of the rosy-pink Pelargonium Christine and Flower of Spring followed by a double row of Echeveria. This arrangement is margined in front by lines of Echeveria secunda glauca, Lobelia pumila grandiflora, and a marginal line of golden Chickweed. The triangular spaces or panels between the semi-circles are planted with the bright reddish-crimson Alternanthera paronychioides major.

F. W. Burbidge.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Pelargoniums, Primulas, Lilies.—The Pelargoniums last cut down will, by this time, have broken sufficiently to admit of their being shaken out and re-potted. It is not a good practice to allow the young growth that is made by these plants after cutting down to get too long before this operation is effected, as the reduction of the roots that necessarily takes place will cause many of the shoots to stop altogether, if they have made much foliage. If the plants are full-sized specimens, and have been grown in 8-inch pots, they may, for the present, be placed in others 6 inches in diameter, and, when these are filled with roots, moved into a size larger. This practice is better than at once putting them into their blooming-pots. In potting, ram the soil quite solid; Pelargoniums do not thrive if it is left loose and open; for, when in this state, it holds too much water to suit the health of the roots, which throughout the winter should receive no more than is necessary to keep the whole mass in a slightly moist condition. The plants after potting should at once be put on a shelf, as near the roof-glass as possible, so as to receive plenty of light. See that Primulas and Cinerarias, in frames, the lights of which have been drawn off to induce stout robust growth, are not allowed to get drenched with rain. It is better henceforth to put the lights over them at night, tilting them up so as to give plenty of air. Mignonette sown in pots for winter flowering should be treated similarly. Lilies that have flowered late and have been placed out of doors after blooming must be regularly supplied with water so long as their tops are green; any that have flowered earlier and show signs of going to rest must not be allowed to get their soil soaked by heavy rains, or it will do them serious harm. Success in the cultivation of pot Lilies depends, in a great measure, on their never being subjected to extremes, as regards moisture in the soil. When their tops have died down the soil must not be allowed to get so wet as is requisite when they are in full growth; on the other hand it must never be allowed to become quite dry.

Shrubberies.—Any alterations that have to be made in planting or removing evergreen shrubs should at once be carried out so that the whole can be completed by the middle of October. If evergreens are taken up carefully, and properly planted, a thorough soaking with water being given them as the soil is filled in, and they are secured with stakes so as to prevent their being disturbed by the wind, they will at once begin to make fresh roots, will suffer comparatively little, and will require no further trouble. This also applies to Roses—the earlier they are got in after this the better, provided they can be planted immediately they are taken up. If, however, they have to be sent any considerable distance, which will necessitate their being out of the ground several days, with their roots more or less dry, the bark will shrivel if the plants are removed at this early period, when the leaves are still green; otherwise early planting has almost everything to recommend it.

Peaches.—In damp localities, where there is a difficulty in getting the wood of Peach trees to ripen on open walls, it becomes necessary to give them every assistance possible. In such places, the shoots should be kept much thinner than is requisite in more favourable situations, so as to allow the sun to get to them; they should also be kept closely nailed in, so that they may receive the full benefit to be derived from the heat of the bricks. Shoots nailed in now will mature their buds much better than if they are allowed to stand away from the wall. These remarks do not of course apply to the southern counties, where the wood will ripen under almost any conditions; but in parts of the kingdom where the Peach can only just finish its wood, in ordinary seasons, it sometimes happens that the shoots are left detached from the wall under the impression that the buds are matured by the extra air they get in such a position. In this respect, however, the influence of the heat derived from absolute contact with the face of the wall is much greater.

Strawberry Ground should now be cleared, all the runners being cut away and removed to the refuse heap; but, in doing this, the old mistaken practice of cutting off a large portion of the leaves should by no means be followed, for, whilst they retain any vitality, they continue to impart strength to the crowns, and, when dead, they afford a natural protection to them through the winter. After clearing away all the runners, let the ground be well hoed, and the weeds (if any exist) raked off, care being taken not to remove any soil with them. This often happens where a negligent, careless system of gardening is followed and weeds are allowed to attain a large size, and is always damaging, but especially so amongst surface-rooting plants, such as Strawberries. A good thick mulching of littery manure applied in spring to Strawberry beds is most beneficial in its effects in keeping down weeds. Where fresh plantations are required, and the land did not happen to be at liberty in August—the best time for planting—rooted runners may now be taken up and planted, 6 inches apart, on a piece of ground previously prepared by digging. These can remain thus for the winter, and be removed in spring to the positions which they are to occupy permanently.

Turnips.—These sown about the beginning of August are an important crop, as upon them principally depends the winter supply; when sown earlier, it is difficult, in many parts of the kingdom, to preserve the young plants from the Turnip beetle. To get a satisfactory return from these late sowings it is absolutely necessary to allow them plenty of room by thinning sufficiently and in time. At this season they make larger tops than earlier, and, unless given space enough, they will not make roots of a useful size. Where the first thinning was insufficient they should at once be again gone over and more pulled out; a space of 15 inches between the plants every way is not too much.

Spinach.—A little more winter Spinach should now be sown at once on a dry piece of ground, and will come in for use in the spring. This late sowing will not have a disposition to run so soon to seed as that put in at an earlier period. It is a good plan to go over the rows, and to partly thin them out, leaving the plants so that they will not become drawn; and to complete the thinning by removing more as they are required for use. Ultimately, those that are left should be about 6 inches asunder. This vegetable, like all others, cannot stand a severe winter when crowded. This method of partial thinning admits of a supply both for the present and future time, being supplied from the same ground. Whenever an opportunity is offered by the land being dry, let the entire surface, where there is room amongst growing crops, be gone over with the hoe and well stirred, in order to destroy the weeds. This saves much labour, by preventing the seeding of such annuals as Groundsel, Chickweed, &c., which will otherwise keep on flowering and maturing seed to the end of the year. It also has the best possible influence upon the present crops, and upon the land, by keeping it more open for the winter; but, in order to effect the greatest amount of good, the soil should be quite dry when stirred.

Carrots, especially the Horn varieties, will, in most places, be ready for pulling. A dry day should be chosen for the work, the tops being cut off as it proceeds, and the roots being allowed to remain on the ground, exposed for a few hours to the sun. They should then be put in an airy shed for a short time until they have discharged a portion of the moisture which they contain, but not so as to cause them to shrivel. After this they should be stored in thin layers in moderately dry coal ashes, which should lie beneath and surround each separate layer, and cover the whole. The previous exposure to the sun and air in open quarters or in a shed, is necessary to prevent fermentation, which would otherwise be apt to occur.

Hardy Flowers.

I should like it to be understood that by hardy flowers I mean plants from every land, and of every description, which are not only worthy of cultivation, but which are also capable of withstanding the vicissitudes of our fickle climate, and of which we can probably grow a larger variety than we should find possible in any other, either hotter or colder, latitude. We may, by a little attention to their wants, safely cultivate plants whose native habitat is under the snow of the higher mountain ranges for, perhaps, eight months out of the twelve, and which are seen, by the traveller over the Alps, in such dazzling beauty making the best of their short summer; and other species hailing from more torrid regions of the globe, from the Cape of Good Hope, from Japan, from Asia Minor and Greece, and even from the colder parts of such regions as California, and from many of the countries of South America. If we are travellers—and most of us are now-a-days, thanks to steam power—we may bring home reminiscences (and the looking back is, perhaps, the best part of travelling), in the shape of living memorials of our wanderings, and which will remind us year by year of spots and scenes otherwise being gradually effaced from our memories. On the other hand I know friends who have gone abroad with every appliance for plant collecting, and who have come home laden with spoils, but who have lost the whole collection, which they have been at such pains to procure, in a very few weeks, simply by either not understanding, or not studying the respective wants of their charges. I am afraid this is only too frequent an occurrence, and one much to be regretted; but, if people will insist on placing Alpine gems in a dried-up border, as they would bedding-out plants in May or June, they cannot be surprised if the more delicate subjects—and these are, as a rule, the ones they bring home—resent the treatment. As I have said before, most of the hardy perennials are of easy (very easy) culture, but a few are quite the reverse, and these, I think, are almost better not attempted. If only enthusiasts in the collection of good hardy plants would oftener give us their experience of them, we should be in less danger than, I think, our forefathers were, of filling our gardens with the wretched rubbish dignified in old gardening books by the name of hardy perennials, such as plants either almost inconspicuous or, on the other hand, coarse and straggling to the last degree. The demand for hardy flowers is increasing so rapidly, however, that we may very probably, after a little, err in the same way; each of us will desire to boast about having a larger collection than his neighbour, probably totally regardless of the merits of the large number of subjects he may have in his garden. If the number of different names we can muster on our labels is our great object, we could go on for ever. Depend upon it, they will be manufactured fast enough for us. We have one great advantage over our predecessors, which is that, at all events, we start fair—or most of us do—without, perhaps, a single old-fashioned flower; consequently, our object should be only to procure those which are really good and distinct subjects; and, as, with every care, we shall probably procure many not worth growing, I think that those fortunate people who have good collections would be doing a great kindness to many of us, by occasionally sending information, through The Garden, as to the merits or demerits of any new (perhaps old would be the more correct term) plant they may happen to have procured. This, at least, is the principle I am acting upon by giving vent to my ideas about different hardy subjects I am (or, in some instances, have been) possessed of. The great want felt by myself, and other amateurs, is that of a good reference book with faithfully-executed coloured plates of our favourites; perhaps we may have one some day. "Wooster's Alpine Plants" is very good, as far as it goes; but the taste for herbaceous perennials is increasing so rapidly that I cannot imagine any difficulty in obtaining sufficient subscribers to make the publication of a standard work on the whole race sufficiently remunerative. It is constantly a matter of impossibility in the case of a new plant to reconcile the name and description, and, in writing our experience of some particular subject, we shall probably occasionally be taken to task by some candid friend, who will inform us that we have been speaking of quite a different plant from the one we intended.—Oxon.

The Flower Garden and Pleasure Ground.

Although indications of autumn are now apparent in the colour of the leaves of various trees and shrubs, but little diminution in the beauty of the flower garden and dressed ground is, thanks to the unusually fine weather which we have for some time experienced, as yet noticeable. To preserve this appearance as long as possible, it will be necessary to spare no trouble in removing fallen leaves from the walks and flower borders, as the dry weather has caused them to fall very freely from evergreen shrubs of all kinds. The different varieties of bedding Pelargoniums and other plants which have been for some time inserted as cuttings in pots, pans, or boxes, and placed in the open air, will now be found to have, to some extent, formed roots, and may be allowed to remain exposed for some time longer, or as long as it may be considered safe to do so, as the refreshing dews of night, so long as they are not too cold, tend to keep the foliage of such plants in a healthy condition, and consequently promote the formation of roots, and they will rarely damp off while they are fully exposed to sunshine and the open air. It may now, however, be advisable to place such store plants in cold pits or frames, and without, as yet, placing the lights upon them, have them, nevertheless, in readiness, so as to be easily applied whenever danger from frost is apprehended. Cuttings of the Verbena and other half-hardy plants will still strike root in a close pit or frame; but to accomplish this satisfactorily a slight bottom-heat will soon be necessary, more particularly in the case of such species as the Coleuses and Alternantheras, which can hardly be expected to root in a temperature under 60°. Layers of Carnations and Picotees will mostly be well rooted by this time, and should be taken off, potted, and placed in cold pits or frames. Prepare also the site for the Tulip bed by the addition of suitable soil. Wherever it may be intended to remove or transplant trees or shrubs of considerable dimensions, the present is a very suitable time for doing so, as the operation can now be accomplished with less risk or danger to the plants than at any other period of the year, allowing, as it does, ample time for the formation of fresh roots before winter sets in. The operation, it is true, can be performed with equal success late in the spring, but it then necessitates a very considerable amount of extra labour for watering if the weather should set in dry, which it very often does, and this, too, at a season of the year when it is frequently difficult to find time to give such subjects the necessary attention they may require. Damp, showery weather, should, however, be selected for such operations; but, failing this condition, the plants, in addition to being well watered at the roots, must be well syringed every evening for some time after being transplanted, and the surface of the soil around the plants should be mulched to decrease evaporation. Cuttings of evergreen shrubs, of various kinds, may now be inserted under hand-glasses, &c., and the layering of such may also be performed now, which will, to some extent, allow time for the emission of roots before winter.—P. Grieve, *Culford, Bury St. Edmunds.*

Indoor Fruit Department.

Vines.—All late Grapes should now be nearly ripe, and a dry air should be allowed to circulate freely about them when they have arrived at this state. Lady Downes, Alicant, Gros Guillaume, and nearly all late varieties improve considerably in flavour after they are to all appearances quite ripe. We have seen the last-named kind in fine condition lately, and where it succeeds well, it is a first-rate black late Grape. Lateral growths should now be cut off Vines of all descriptions; late rods, with plenty of healthy foliage, will still produce these shoots, but they must not be allowed to grow more than an inch or two, and should then be removed. Be particular to keep Vineries clear of decayed leaves; if they are left lying about where ripe Grapes are hanging, they induce damp among the fruit. Vine wood, in both early and late houses, is fast becoming hard, and, where green sappy wood still exists, it should be ripened as quickly as possible, with the assistance of a little fire-heat at night and on dull days. Keep a little air on at the same time, or the berries will shrivel in the close warm atmosphere. Where the wood is shaded with a great quantity of leaves (and this is often the case with the leading shoots of young Vines), thin the largest of them out; do not break the leaf-stalk close to the wood, but where it joins the leaf. The wood on early Vines should now be ripe and ready for pruning.

Pines.—Late varieties swelling fruit should have a night temperature of 70°. The second batch of Queens must now be gradually prepared for winter, and the atmospheric moisture about them should be reduced, especially during the day; and less water at the root should be given. Later plants, which were placed in their fruiting pots in June, must still be kept growing. Bottom heat is not of so much importance to these as a bracing atmosphere; and all kinds of shading should be removed without delay. The last of the suckers must now be taken off, and potted; they do not root freely, or winter well, when potted later on. No shading should be used in protecting them from the sun when rooting; the hardier they can be grown the better; 5-inch pots are large enough for these late suckers. Any late Queens which may be in fruit should be ripened speedily, as high flavour is never induced in November or December. —J. Muir.

Hardy Fruit.

For the next two or three weeks, the principal work in this department will be gathering and storing the fruit. A certain amount of experience is requisite to know exactly when this should be done, none but a practised eye being able to detect at a glance when an Apple or Pear is ready to gather. To an experienced grower, a good criterion of ripeness is to gently raise the fruits; and, if they part readily from the tree, then they may be gathered. Another, and perhaps a better, guide is to cut open a fruit; and, as a rule, if the pips are brown or black they are ripe enough to gather. The quality of fruit—Pears in particular—is greatly influenced by the time of gathering; if this be done too early, the fruit will shrivel and be flavourless, and, if left too long on the trees, its keeping properties deteriorate, and it soon decays; so that too much importance cannot be attached to the choice of the right time of harvesting. Also be careful not to store cracked, wasp-eaten, or bird-pecked fruit with that which is sound. We generally make three classes when storing: —first, all imperfect fruit, and those not likely to keep long; second, the small, but sound fruit; and third, the finest and best-looking fruit. Late Peaches and Plums are very backward this season. Princess of Wales, Walburton Admirable, Lord Palmerston, and Desse Tardive Peaches, and Coe's Golden Drop Plum, are yet as hard as at midsummer, so that every advantage should be taken of the present favourable weather to induce them to ripen by clearing away the leaves and shoots that intercept the full play of the sun on the fruit. Preparation should now be made for the lifting and replanting of any Peach or Nectarine trees that are not satisfactory. If the wood of the trees is anything like ripe (not otherwise) there is no need of waiting till the fall of the leaf before removal; and, if this be accomplished before the end of October, there is no difficulty in securing a crop of fruit the following season; hence, the recommendation to do it early. Peaches naturally prefer a rather stiff loam, in which chalk is present; but, if such is not to be had, it should be added at the rate of one bushel to thirty. Manure of any kind mixed with the soil is injurious rather than otherwise; but, when feeding is necessary, it is best supplied as a top-dressing or in a liquid state. The following are amongst the best kinds, both as regards bearing and quality:—Early Louise, Early Grosse Mignonne, Crawford's Early, Crimson Galande, Royal George, Sulhamstead, Violette Hâtive, Noblesse, Alexander Noblesse, Walburton Admirable, and Princess of Wales. Nectarines:—Downton, Pitmaston Orange, Elruge, and Violette Hâtive. Raspberry canes, that have done bearing, may now be cleared away, and the young canes for bearing next season will then have more space for perfect development and ripening; if these have not previously been thinned out this should now be done, leaving from five to six at each stool, and tying them neatly to their supports. The fruit of autumnal bearing kinds should be protected from birds, or, when wanted, may be found missing. Nuts of all kinds are this season very plentiful, and will soon be ripe enough to gather; this should be done, as squirrels are destructive to them, and it is not safe to leave the crop hanging long after it is ripe. Filberts and Cobs should be spread out thinly on shelves or floors, in dry rooms, where the Nuts will soon fall from the husks, and may then be collected and packed away in air-tight jars, boxes, or drawers. Walnuts should be spread thinly in any dry place, and the husks allowed to break off naturally, the shells are then clean and fit for the dessert table without washing. —W. Wildsmith, *Heckfield.*

Fly on Roses (S. H.).—Quassia and soft soap wash will destroy aphis. It is made by boiling 4 ounces of quassia chips in a gallon of water for half an hour; let the liquid stand until cool, then strain, add 6 ounces of soft soap, and then enough water to make three gallons. With this the bushes may be syringed. Tobacco-water is the best remedy. It may be had of most tobacco manufacturers, and should be diluted with six times its quantity of water, or it may be made by pouring a gallon of boiling water on 4 ounces of the strongest tobacco, covering up, allowing the liquid to stand until cool, and then straining. The shoots infested with aphis may be dipped in it, or the plants may be syringed with it.—T. H.

The Cucumber-leaved Sunflower (Helianthus cucumerifolius).—This is the best annual Helianthus which I have yet grown. It is a Texan plant, the height of which is from 3 to 4 or 5 feet, with much branched stems, and with rather small deltoid-cordate foliage, which, like the whole plant, is very scabrous. The flower-heads measure 3½ inches across, terminating the branches, with about from 16 to 20 bright yellow rays, rather deeper in colour at the base than at the tips, and a conspicuous convex disk of a deep black-purple, relieved by the yellow of the pollen. Treated as a half hardy plant, it commenced to bloom in June, and promises to continue in flower till the arrival of frost. Being free from the coarseness of so many of the other species of Sunflower, it is likely to prove an important addition to border annuals, as it is not only very showy, but a continuous bloomer. The flower heads are remarkable for their evenness and finish, differing in that respect from all the species that I have seen.—Wm. Thompson, *Ipswich.*

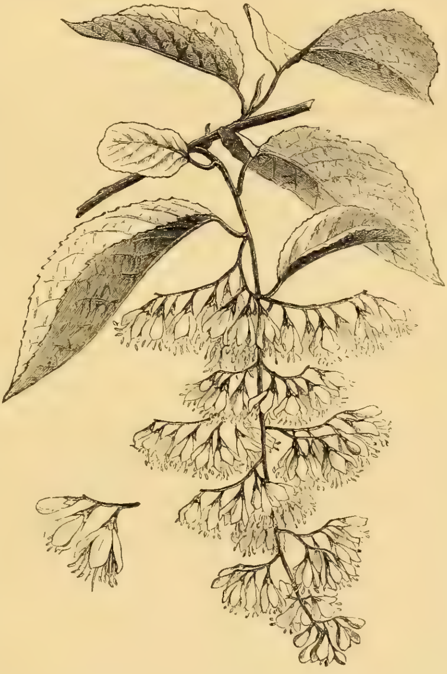
The Bouquet Pea.—Have any of the readers of The Garden grown this remarkable and ornamental variety of the Pea family? Its flowers are red and white, and are exceedingly pretty, each spike forming of itself a bouquet as it were, so that it well deserves its name. It grows about 2½ or 3 feet high, and the stems at the bottom are not thicker than a straw; but nearer the top, where the flowers are produced, it acquires the thickness of a man's finger, or nearly so. The spikes of bloom, when cut, keep well in water, and, when better known, it will probably, on this account, be much in request. I know nothing of its origin, but it has the appearance of being a cross between some of the culinary varieties and the common Sweet Pea, the flower being only slightly scented. It appears to seed very freely, and the produce resembles that of the common field Pea, and, for ought I know to the contrary, it might be used for culinary purposes.—Peter Grieve, *Culford.*

TREES AND SHRUBS.

THE PLANTING SEASON.

Few will be inclined to dispute that the best time for planting both forest and fruit trees, as well as ornamental shrubs, whether deciduous or evergreen, is just when the leaves have fallen or are about to fall; but, where planting has to be done upon an extensive scale, it has to be proceeded with at all times when the weather is open and favourable throughout the winter. Still, the sooner a commencement is made the better, and one condition is essential to the success of such operations, more particularly when they are performed at somewhat unfavourable seasons, viz., that the plants should have been properly prepared for removal in the nursery, before being "sent out," and, if this has been the case, planting may be performed with little risk, at almost any season. Young trees and shrubs of all kinds should be moved or transplanted every season while in the nursery, and this has generally the effect of inducing them to root near home, as it is called, or near to the boles or stems, and there to form dense masses of fibrous roots, which necessarily retain a considerable portion of soil. When this is the case, the moving and transplanting, in reality, inflicts but a trifling check upon the plants. With regard, however, to the transplantation of trees or shrubs which have attained considerable dimensions, and to which these remarks are intended more particularly to apply, the case is somewhat different, as they will probably have occupied the position in which they now stand undisturbed for years, but from which, owing to some cause, it may, nevertheless, be desirable to remove them. In cases in which this removal has been for some time decided upon, and in which the trees have been judiciously root-pruned some twelve months ago, their removal will be comparatively easy, and little risk will attend the operation, which may be proceeded with at once, even in the case of deciduous trees. The leaves of these have now accomplished their mission, or nearly so; the young wood is in a comparatively ripe state, and the buds have also arrived at that condition when they will be the least affected by the temporary check which is necessarily sustained through the mutilation of the roots. If the operation, however, is performed now it will afford ample time for reparation before the soil and the atmosphere have become so cold as to retard the production of fresh roots. In all cases in which it is inconvenient to attend to the final removal of trees at present, or soon after the leaves have fallen, it will be advisable (more particularly if the specimens to be moved are valuable) to defer the performance of the operation until somewhat late in the spring, when it may be accomplished with more probability of success than at any time during the winter or late in the autumn, however favourable the weather may be. There are, however, one or two points which it is quite necessary should receive attention in the case of late spring planting, viz., keeping the plants as short a time as possible out of the soil, so that the fibres may not, to any great extent, become dried up, and the giving of abundant and frequent supplies of water to the roots, as well as mulching the surrounding soil to prevent undue evaporation, and the syringing of the plants every evening during dry weather, until there are sufficient indications of their having become established in their new situations, when that attention may, of course, be discontinued, especially if the weather be damp or cloudy. It has been frequently shown that evergreens, and even deciduous plants may be successfully transplanted at almost any time of the year; and, as regards evergreens, many planters prefer early summer, say the beginning of May, to any other season, for the performance of this operation. The only drawback or objection to the selection of this period is the very considerable amount of labour which it necessarily demands, in the form of watering, and other attentions, at a very busy time of the year. Therefore, all things considered, early autumn may, in most cases, be regarded as the most suitable period for the prosecution of this work, when the newly-transplanted specimens will not only require less labour, in the form of watering, &c., but it will be also possible to devote more time and attention to all their requirements. P. Grieve.

Culford, Bury St. Edmunds.



Pterostyrax hispidum.

PTEROSTYRAX HISPIDUM.

This fine branching Japanese shrub, which is too seldom met with in cultivation, bears some resemblance to the Halesia or Silver-bell tree of the United States. The leaves, which are strongly veined on the upper surface, glabrous, and oval-elliptic, attain, including the petiole, a length of over a foot, and a breadth of about 7 inches. Their edges are indented, but to no very great depth. The petiole is large, cylindrical, and slightly caniculated on the top. The flowers, which are produced in pendent bunches 7 or 8 inches in length and 3 or 4 inches in breadth, are white, the calyx being small and sharply toothed; the corolla appears to be almost polypetalous, on account of the depth of its divisions, which are straight and somewhat erect. The stamens inserted into the throat of the corolla are erect, with white threads, and reach beyond the petaloid divisions by a third; the anthers are whitish-yellow in colour; the style single and projecting. The plant itself, which is very hardy, has, according to the "Revue Horticole," flowered with MM. Thibaut & Keteleer, and also in the nurseries of the Museum. It thrives best in stiff silicious soils; but it will grow in almost any kind of soil and situation, even in peat. It is propagated by means of layers, or from cuttings made of the half-ripened wood placed under cloches in June or July.

New Mode of Layering Shrubs.—The "New England Farmer" describes a mode by which such shrubs as the tree Peony and the white Moss Rose, which are slow and difficult to procure by rooted layers, may be rapidly increased—"more plants being produced in a single season than in ten years by the old common method." It consists not in bending down and layering single branches, with a portion in the soil, but by bending down and covering the whole plant alike to a depth of an inch and a-half. The explanation is that by this mode, all the buds receive a like impulse to throw out roots; while if a portion only are covered, the vigour of the plant is drawn away in another direction. The shallow covering does not prevent growth.

THE FLOWER GARDEN.

THE CANADIAN BITTER-ROOT.

(LEWISIA REDIVIVA.)

The showy beds of Portulacas now in bloom bring to our mind this curious North American plant, which for a long time was placed amongst the Sempervivums; but which is now, with more propriety, referred to the Portulacas. It is a Rocky Mountain plant, and is found not only amongst these mountains, but on each side of them, but not so far on the east, nor in such quantity, as on the west. On the eastern side it occurs sparingly on the plains of the Upper Platte; but is abundant on the Upper Clarke or Flathead River, which, for a reason to be presently mentioned, is on that account denominated by the Canadians Rivière aux Racines Amères. On the western side of the mountains it is still more plentiful, especially on the plains of Oregon and on the waters of the Upper Columbia. It extends from Oregon all the way down the Sierra Nevada to northern Arizona. It occurs in Utah, at no very great distance from Salt Lake City, viz., on the Pilot Rock Point, at the south end of Salt Lake. The Indians, especially the Flathead tribes, value the root of this plant highly; it is pungent and spicy when raw, agreeable and wholesome when cooked, and the mode in which the Indians prefer it is when prepared with the marrow of the Bison. Of course, that is a dainty which does not extend west of the Rocky Mountains. It has also acquired fame among Europeans, and travellers generally use it in those regions as a very wholesome food, and it is prized in spite of its strong bitter taste, which resembles the bitter of the Cinchona bark. It is also called Tobacco-root, because, when cooked, it has somewhat the smell of chewed tobacco. The Indian name is Spatlum or Spaet'lum. The root is dug during flower-time, when the cuticle is easily removed; it then acquires a whitish colour, is brittle, and, by transportation, gets broken to small pieces. Before boiling, it is steeped in water, which makes it swell, and, after boiling, it becomes five or six times larger in size, resembling a jelly-like substance. As the root is small—no larger than that of a Dandelion—it requires much labour to gather a sack, which, in former times, commanded generally the price of a good horse. Indians, also, from the lower regions, trade in this root, by handfuls, paying a high price. Although it is thus well known, the botanist who passes through these regions is often disappointed in not finding it growing. The reason is the short period for which it is above ground. Six weeks, at most, is the period during which it vegetates above ground for the whole year. At first, the fascicles of the leaves show themselves, then the scapes; and as soon as the first flower begins to open the leaves die away. The flower is only open during sunshine, and, when fructification has taken place, droops down or hangs down and rests on the ground. When the seeds are ripe, the peduncle and calyx become dry, the former separates from the joint of the scape, the calyx and sepals spread wide open, serving as wings, and then the wind whirls it about, so as to spread the seeds, which, as yet, were covered by the cap formed out of the dried contorted petals, and which are held by means of the claws being forced against the inclining inner sepals. When it is above ground and in flower it is visible enough. Where it grows in profusion, the whole surface of the soil seems covered by a crimson or purple carpet. The flowers vary in colour—some are white—the colour being generally paler on rocky ground, but in the sandy woods it deepens in hue, through rose, brick-red, to purple. On the only occasion on which we have seen it in flower it was of a purplish hue. The root was of the size of that of a Dandelion, orange in colour, with a brown skin. The first year the root is vertical, afterwards it becomes divided. The plant was first brought to the notice of botanists by the great pioneer, Captain Lewis (the companion of Clark), and his attention was directed to it by the Indians, who brought him some of the roots. The collection of plants formed by him came under the examination of Pursh, who named this plant in honour of its collector, with the fitting specific cognomen of "rediviva," because the specimen sent home revived and grew again at Kew Gardens, after having been about three years out of the ground between paper. A similar incident took place with some herbarium specimens, sent home by Jeffrey, the collector, who was sent out by the Oregon Botanical Association. We remember that when these arrived they looked so fresh and full of sap that the committee thought they might be tried in the ground; this was done, and they grew and flowered. Mr. Geyer, who published a good account of the plant many years ago, from which we have taken some of the above details, mentions that he was about to have the root analysed, in order to ascertain the principle on which its special qualities depended. We have not seen the result (if it was ever published), but Gray and Torrey seem to think that, from the relation of travellers, the root, after the bark or outer coat is stripped off, consists of little more than starch. This plant has proved quite hardy in Britain, thriving in any free well-drained soil on the rock garden, to which it is a valuable addition. A. M.

NOTES ON LATE-FLOWERING PHLOXES.

For our new Roses, Gladioli, and late-flowering Phloxes we used, at one time, to look almost wholly to the Continent; but, ever since the occurrence of the Franco-Prussian war, we have had good home-raised varieties of all three flowers, and in none of them has there been greater improvement than in the Phlox, a fact fully exemplified by such flowers as Lothair, Bryan Wynne, H. M. Simons, J. K. Lord, Lady Middleton, and others. To be appreciated as it ought to be, the Phlox requires to be well cultivated; it will grow, it is true, if left to itself, and even flower tolerably well; but old plants are not as satisfactory in these respects as young ones. A well-grown two-year-old plant will make a better display than one six times that age. Phloxes are generally increased by division; old plants are taken up with a spade, and the outside portions are broken off, and re-planted, leaving about five shoots to each plant. Cuttings may also be taken off in autumn, and struck in a cold frame, or out of doors in a shaded situation, and, if properly attended to, they will flower well the following season. Plants lifted after the flowering is over and potted into the smallest-sized pots possible, and kept in a cool house, will, by January or February, furnish plenty of cuttings which will strike readily in a slight bottom-heat, their tops being kept cool. They must be kept moist, and not allowed to flag after being struck; clumps of threes, planted together, make effective plants by autumn. A deep rich soil is not so essential to the well-being of the Phlox as to plants which root deeply; but still it is necessary that it should have at least one foot in depth of really rich highly-manured soil. A surface dressing of hotbed manure, or, better still, where it can be obtained, of horse-droppings, greatly benefits the plants. This, of course, is only applicable to Phloxes grown in beds, lines, or clumps. They also like plenty of moisture, without which fine heads of bloom need not be expected. On places of large extent, few flowers are more effective than Phloxes when grown in clumps or beds by themselves in different parts of the grounds, or in lines associated with other flowers. A mixed border is unfurnished without a selection of the best Phloxes. Even as conservatory plants Phloxes are useful; and, for this purpose, plants the second year from cuttings are best. They do not require much pot room, but ought to be planted in good substantial loam, and manure-water will be found of great service to them, as well as one or two dressings of Standen's manure, *i.e.*, if large spikes of bloom are required. They have the good property of remaining long in blossom, and that at a period when greenhouse flowers are somewhat scarce. The following selection, in addition to those already named, may be relied upon as being a good one, viz., Etna, A. F. Barron, Amabilis, Chanzy, La Candeur, Madame Moisset, Miss Macrae, Mrs. Laing, Mons. W. Bull, Venus, Queen of Whites, Mrs. Standring, and Princess Louise. Plants belonging to the early flowering section do not, as a rule, succeed well in the south, though I have found white-flowered varieties do well there, and of these some are deliciously fragrant. On the whole, however, they are not of such value as the later flowering sorts, inasmuch as the hot weather soon drives them out of flower. Among the best of them are—A. McKeith, Clouded Gem, Duchess of Athole, Mrs. Downie, Lady Napier, Miss Robertson, Mrs. Doig, Marquis, Perfection, Purple Emperor, John Baillie, and J. McDonald. R. P. B.

AUTUMN CROCUSES, &c.

Now, when the summer beauty of the year is yet untarnished in our gardens, the autumn Croci and Colchicums give here and there a touch of spring. In the gardens round London, in which these flowers are grown, there is much and varied beauty; but, as yet, it is rare to see these flowers employed to good effect. In squares and in lines in the nurseries devoted to such plants they are attractive enough, and also occasionally, in small quantities, in some private gardens; but we shall not fully recognise their great value till such flowers as the showy Crocus speciosus and the various Meadow Saffrons are seen in dense groups in the wild garden, as parts of beds and groups of hardy flowers, or grown on lawns, either by themselves, or scattered near trees and shrubs. The aid that so many plants are ready to give us in changing the aspect of our gardens from time to time, we are slow to take advantage of. How charmingly, for example, we may adorn some favourite nook in the lawn at this season with the flowers of a blue and gold-tasselled Crocus rising up almost suddenly through the Grass. So it may be in many other cases, and in the roughest places and worst soil, for all these flowers are very hardy and vigorous in constitution. All lovers of hardy flowers then would do well to secure as many as possible of these beautiful autumn-blooming plants; and such as are not yet familiar with their beauty would probably be greatly interested in seeing them in the various nurseries in which they are grown, and also in the botanic gardens. About London the best collections are at E. G. Henderson's, St. John's Wood; Barr's trial grounds, Tooting; Ware's, Tottenham; Osborn's, Fulham; and Parker's, Tooting.

A Meadow Saffron in bloom.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Illicium religiosum in Kent.—This very interesting shrub is quite hardy, and forms a glossy bush 4 feet high in the interesting American garden at Saltwood Rectory. It is in a valley, thoroughly sheltered by many noble evergreen trees and shrubs.—V.

Wanner's Hairbell (Campanula Wanneri).—This is a distinct and handsome species, 6 to 10 inches high, with drooping, dark blue, tubular-bell-shaped flowers, each 1½ inches long, appearing in May. A native of Transylvania and the Banat Alps. At present it is not common, and, until more plentiful, should be confined to the rock-work; but it will probably prove an excellent border plant. It requires ordinary free or sandy soil.—W.

Arabis lucida for Carpet Beds.—It is surprising that this little plant has not been brought into notice by those who practise panel or carpet bedding. It is perhaps the greenest plant with which I am acquainted, not even excepting the Holly. It has a marvellous effect when associated with such plants as the Echeverias, and, if judiciously used, would give character and, perhaps, add a new feature, to this style of bedding. Its habit is good, and it makes a beautiful edging—plant for plant—with Echeveria secunda glauca.—Thos. Williams, *Ormskirk.*

Useful Calceolarias.—One of the best we have grown this season is the small, but bright yellow-flowered kind named Indispensable. It came early into bloom, and stood the heavy rains better than any other kind. It is now flowering abundantly, and has a fine succession of bloom coming forward. Four corner beds of this sort, edged with Ajuga reptans—a dwarf white-leaved Pelargonium being next the Grass—has a very pleasing effect. Calceolaria aurantiflora was late in coming into flower, but it is now making up for lost time by the freedom with which it blooms.—M. Temple, *Blenheim.*

THE KITCHEN GARDEN.

POTATO RAISING AND CULTURE AT WOODSTOCK.

Few topics of an horticultural character create so much interest, or are so much discussed, as those which relate in any way to the Potato. This interest has been gradually growing, having been fed by discussions on the Potato disease, by the introduction of many new and fine kinds from America, by the importance which the Potato has attained as an article of commerce and consumption, and, not least, by the position to which it has risen as a subject for exhibition, which has led to the establishment in London of an International Potato show. No apology, therefore, is, I apprehend, necessary for referring to the varieties raised by Mr. Robert Fenn, of Woodstock—a name now familiar to all Potato growers—and to the mode of cultivation by which he annually secures crops that are second to none in the kingdom. Mr. Fenn dates his earliest experience in Potato culture back to a period some thirty years ago. At that time our stock of Potatoes was an exceedingly limited one. There were few kinds in cultivation, and, with the first appearance of the Potato disease, it was difficult to create much interest in what might be new and improved kinds. There still exists much scepticism as to whether the best Potatoes of to-day are better than the best Potatoes of a generation or more since; but the best answer to that doubt is to be found in the fact that few persons have thought them worth preserving, for a list of the best Potatoes of the present day includes few that date back to a longer period than twelve years. Myatt's Ashleaf and the original Lapstone are still well favoured, but these are both kinds of high quality in their respective periods; but both have defects that render neither of them suitable main crop Potatoes. To this list of improved kinds, Mr. Fenn has added a few good sorts, whilst his work as a raiser is not yet half done. The late Mr. Paterson, a famous Scotch Potato raiser, said, not long before his death, that his mantle would fall on Mr. Fenn's shoulders; and, just as in years past, Mr. Paterson gave us his Victoria, Scotch Blue, Princess Louise, and others, so has Mr. Fenn added Onwards, Rector of Woodstock, Bountiful, and Early Market, and, in a few years, to these will be added some half dozen others that will prove, without doubt, most worthy successors to the fine kinds already named.

Manures and Ridge Culture.

Growing up gradually at Woodstock has been the use of earth closet manure and the ridge system of cultivation; in fact, Mr. Fenn can claim to have been almost the originator of the earth closet system. Many years ago, and long before the patents of the present day had been heard of, Mr. Fenn had made widely known, in the pages of a contemporary, how he had worked out the plan, and how successful it had proved at the old Woodstock Rectory. Allied to this, also, was a plan for the saving and utilisation of all liquid sewage. Earth-closet manure would, from Mr. Fenn's experience, appear to be the very best form of Potato manure. It contains nothing of that moist coarseness, so commonly associated with yard manure, added to which, if properly stored, it is fine in character, highly pulverised, dry, and full of potassium, and those elements that build up good Potatoes. This excellent material is stored in tubs during the summer, and is perfectly deodorised, and in the winter is strewn liberally over the soil where the Potatoes are next to be grown, and well worked in with digging forks. The constant addition of this material during a long course of years has raised the soil several inches, and it is as open as an ash-bed. The Woodstock soil is naturally ill-favoured, as it has a deep sub-stratum of limestone or stone-brash, and the pulverised soil on the surface presents the result of many years constant labour in cultivation. As the ridge system of cultivation admits of the growth of a winter green crop between the Potato ridges, it is here that the liquid sewage is utilised, and to all the Brassica family it is very liberally administered during the growing season. As in the ridge arrangement, the Potato crop of next year will be planted just where the green crop of this year is growing, so will the Potatoes partake of the enrichment the soil has received from this source, as also from the dry manure as before mentioned.

The ridge system of cultivation involves the expenditure of more labour than is required on the old system of growth, but saves much good seed. Ordinarily, only one-half the number of tubers required to plant a given space of ground will be needed if the ridge system be adopted; with strong-growing kinds, the rows should be at least 4 feet apart, and less robust kinds should have a width of not less than 3 feet 6 inches.

Planting.

The preparatory labour, as regards planting, includes the thorough working of the soil previously with the addition of some form of manure and a good dressing of hot-slaked lime; then, at planting time, a shallow drill should be drawn with a hoe at the required distances, and when the sets have been laid therein, the work of covering in is performed with a fork, the soil being placed from between the rows immediately on each side of the tubers, so as to leave a shallow trough just over the sets. As the haulm increases in height more soil is added with the fork; and, as a finishing touch, a narrow shovel is run along the bed of the furrow, and the crumbs are put up neatly on either side, a perfect ridge being formed. As the haulm extends it will fall abroad, and leave the ridges exposed to the sun, and probably from this cause, as also from the highly pulverised nature of the soil, Mr. Fenn finds that his crops arrive at maturity at a much earlier period than those grown on the old flat system. To the elevated position of the ridge, and to the effect of this quickened growth is probably to be attributed the fact, that Mr. Fenn's crops escape almost altogether the attacks of the disease. Elevated ridges of soil, placed on a deeply-worked cool bottom, are much warmer than flatly laid soil. Moreover, in periods of great moisture, such as prevailed last July, and when the Potato crop is at a most critical stage, the ridge throws off much of the rainfall from the tubers, and the roots, being thus kept comparatively dry, are much less endangered than if growing on the flat system. It is a fact that during the past season Mr. Fenn has lifted remarkably clean crops of choice Potatoes, and the samples have been of the highest character; his losses from disease, out of about sixty bushels did not exceed some six or seven bushels, a very small proportion, indeed, in rich soil and with haulm robust and full of vigour.

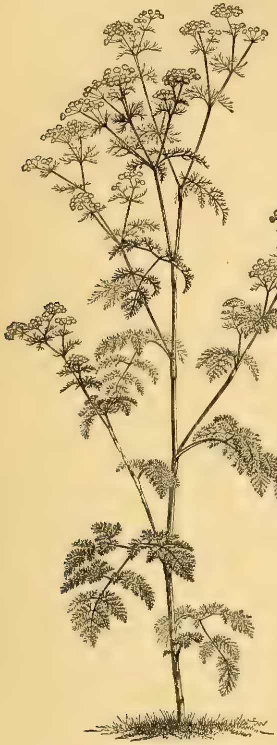
Varieties.

I have already ventured to enumerate some of the kinds of Potatoes with which Mr. Fenn's name is associated; but his present batch of seedlings bids fair to greatly excel all these; indeed, some of these seedlings deservedly rank amongst the finest forms of the Potato I have seen. Amongst parent kinds, Mr. Fenn has used the Ashleaf, Coldstream, Shutford Seedling, and Turner's Union as progenitors of his older sorts; then, to raise the present batch, he selected some of his own best kinds, crossing them with the Dawe's Matchless Kidney and other kinds that promised to add size and whiteness of flesh to his own fine form and quality. From out of these crosses, made in 1870, he has selected a dozen, and of these I append some brief descriptions. I premise them, however, by saying that the Woodstock Kidney, which constitutes the chief parent of the seedling Kidneys, was the product of a cross between Paterson's Victoria and the Fluke Kidney, so it will be observed that Mr. Fenn has been operating upon a first-rate strain. The old Woodstock Kidney has, however, been withdrawn, and has given place to the seedling Woodstook Kidney, which is truly a grand variety. It might be classed as a late second early, having a robust haulm, and being a heavy cropper, producing tubers remarkably smooth, handsome, and even in shape, long, flat, and straight, of first-rate table quality. This is a superb exhibition variety. The pollen parent of this kind was the Early White Kidney. A remarkably grand Potato is the International Kidney, so named in honour of the forthcoming Potato exhibition. This is the result of a cross between the old Woodstock Kidney and Dawe's Matchless. It is an immense cropper, producing very large but handsome white tubers. This, too, ranks as a late second early; it will also be a favourite show kind. Seedling No. 33 is a product of the same cross, having medium upright haulm with Ashleaf foliage, and ranks as a second early; the tubers are large, flat, and handsome, kidney shaped, rather netted, and of first-rate quality; another beautiful exhibition kind, still from the same cross, is Seedling Kidney No. 5, an early second early sort, having a medium haulm and long, flat, handsome, Lapstone-like tubers; it is a large cropper, and the tubers are of fine, crisp, table quality. Seedling No. 18 has a very dwarf top, and is an early second early; tubers, very even in size, long-round in shape; skin, smooth, white, and very handsome; the flesh brisk and floury, and of fine flavour. The last of the selected Kidneys is Seedling No. 53, still of the same cross; it has a fine robust haulm, pointed foliage, and ranks as a late second early; tubers, large, white, and resembling an improved Dawe's Matchless; sample, very even; a large cropper. Round kinds, selected as given below, originated from the Coldstream and Ashleaf, the immediate parents being Mr. Fenn's Rector of Woodstock and another seedling kind that produced large round tubers, that were rather too deep-eyed to suit his taste. It has, however, proved a fine pollen parent. Seedling Round No. 30 has very dwarf Ashleaf foliage; tubers, smooth in shape, flattish-round and handsome, and of good size; flesh, white and of fine quality; quite a first early, and fit for frame or early border. Seedling No. 20, dwarf, robust, compact top, a larger form of No. 30, and a fine succession kind; tubers, flattish-round, large, and handsome. Seedling No. 15, a fine kind, provisionally named Major of Woodstock. Haulm, medium, robust, and very distinct; tubers, large, long, oval in shape, very handsome and even, second early, a heavy cropper; flesh, white and of fine table quality. Seedling No. 37 is the product of a cross between Rector of Woodstock and Early Market; very dwarf haulm, with crumpled foliage, but is a large cropper, first early; tubers, flattish-round, smooth and handsome; a fine garden variety, of choice table quality. Seedling No. 84, out of the same cross; a late second early; haulm, robust, medium height; tubers, round, like Rector of Woodstock, of which it is an improved form; a large cropper, and tuber of fine quality. Seedling No. 43, although out of Woodstock Kidney and Dawe's Matchless, is a round kind, having large Regent-shaped tubers, and is a heavy cropper; flesh, white, mealy, and of fine flavour; evidently a fine market Potato. This is a selection of twelve kinds, made out of several hundreds of seedlings, many of the rejected kinds being of a fine character, but more are not required. Mr. Fenn specially devotes himself to the production of garden varieties, such as are suitable for the table of a connoisseur, making size only a secondary consideration, but always keeping beauty and quality foremost. How far, in this respect, he has been successful the batch of seedlings now selected will, doubtless, in good time, give evidence; but, if careful, patient, and earnest perseverance deserves reward, certainly Mr. Fenn is a worthy object for the bestowal of Fortune's favours. May he eventually receive them. A. D.

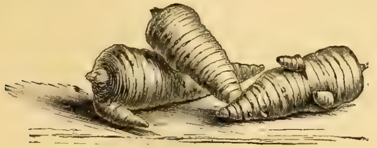
THE TUBEROUS-ROOTED CHERVIL.

(CHÆROPHYLLUM BULBOSUM.)

This is an umbelliferous biennial, the root of which forms a conical-shaped tuber, blackish-grey outside and pale yellow inside. In substance it is farinaceous, and has a somewhat sugary taste. The tubers, which are edible, have, however, one great fault—that of being too small. It is rare that they attain a bulk larger than that of a hen's egg, and, usually, they are about the size of Chestnuts. This plant has long been cultivated in Germany, whence it was, we believe, introduced into France by M. Jacques, formerly gardener at the Château de Neuilly. Like the Skirret, the bulbous Chervil is a vegetable the value of which is disputed, more especially on account of its small produce, which scarcely covers the cost of raising it; but it may be admitted as a fancy vegetable in private gardens where space is no object. Looked at from this point of view, it deserves to be improved, and this has been accomplished here and there with some degree of success by different horticulturists, amongst whom may be mentioned MM. Aubé, Vivet, and Simet, who raised and showed to the French Horticultural Society tubers that weighed from 5 to 6 ozs.—a weight which has rarely been exceeded. By planting closely, however, it is possible to obtain tolerably abundant returns upon a small area of ground, for M. Limet stated to the society that he cropped more than 5 bushels from 80 square yards of space, which would amount to about 500 bushels to the acre. The bulbous Chervil is a very hardy plant, which appears to flourish on any soil. A good argillaceous soil, however, appears to suit it best; in calcareous, sandy, or light soils, the leaves are scanty, and the tubers are correspondingly small. It is sown in August and September in ground that has been manured the previous year, and which has not carried during that year a crop of Carrots or other umbelliferous crops. If the weather be dry when the plants come up water must be given, for they like plenty of moisture. Towards the end of July, or early in August, the leaves turn yellow, which indicates that the tubers may be harvested; it is, however, better to allow them to remain till September, as they are then larger and riper. They may be eaten at once, but it has been noticed that their quality is much improved if they are kept for a month or six weeks, and until some of the moisture contained in them has had time to evaporate. They can be kept in a cellar till February or March; but they are less palateable than if eaten before Christmas. In order to obtain seed, the best roots should be chosen, and planted about a yard apart each way. The top sprouts again in the spring, and the seed is ripe in July. F.



Tuberous-rooted Chervil.



Tubers of the above.

Potatoes of the Future.—I lately paid a visit to Mr. Atherton's nursery, at Chatteris, Cambridgeshire. He was harvesting his Potatoes, and I certainly never witnessed a finer sample or a better crop than he had of Snowflake, which is clearly destined, owing to its many good qualities, to be the "Potato of the period." When cooked it does not belie its name, being flaky and mealy as flour. It is a strong and free grower, and very productive; the tubers are large and attractive to the eye, a circumstance which gives it a great advantage in the market. Mr. Atherton's seed was procured direct from Canada. He cut up 12 lbs. of tubers into 407 sets, and planted them on the 4th of March, in loamy soil without manure. On the 20th of August he dug up 1,578½ lbs., of which 1,325 lbs. were good sound Potatoes, and 253 lbs. were more or less diseased. The heaviest root weighed 8½ lbs., and the largest Potato 26½ ozs. Hundreds of the tubers weighed from 1 to 1¼ lb. each. With such results it hardly requires a prophet to predict a popular future for Snowflake. I likewise remarked in Mr. Atherton's nursery a new seedling Potato raised by him, which appeared likely to turn out well. It is of a round shape, a very early cropper, and specially adapted for forcing, the growth of the haulm being short and compact, and the tubers coming early to maturity.—W. N., *Newark.*

The Potato Disease in Nottinghamshire.—On all the strong soils in this district, the Potato crops now being lifted are more extensively diseased than in any year since the evil first appeared. In lately lifting some varieties, such as the Rector of Woodstock, and the American kinds, Climax and the Early Vermont, I found hardly a sound tuber among them. In cottager's gardens, all late sorts are complained of as not worth lifting; and it will only be in cases in which the farmers have allowed some to be planted in the fields, where there will be a chance of saving some for the winter's consumption. Cottagers' gardens are, in general, so shaded with fruit trees and vegetables that a wet August or September in their rich soils generally induces the disease most virulently. Since the 15th of August, the weather in the Midland counties has been very favourable, little rain having fallen up to the 2nd of September. It is to be hoped, therefore, that the late crops of Potatoes on light soils will partly escape the mischief that the rain made upon those just ripening in the first two weeks in August. In the gardens here, on our strong soil, I never knew the Potatoes look healthier than they did in the middle of July; and all the early sorts lifted then for seed have kept well, and show no diseased tubers amongst them. In wet summers the only chance of having sound crops of late Potatoes on strong damp soils will be to plant them on raised beds or ridges; and this I intend to do here for the future.—William Tillery, *Welbeck.*

Extra Early Vermont Potato.—This new American Potato very much resembles in shape, colour, flavour, and productiveness, the late American Rose. I planted 7 lbs. of seeds on March 10th, and lifted them on July the 27th, when a few spots of disease were apparent in the haulm, but not in the tubers. The weight lifted was 330 lbs., being 49 lbs. to each pound of seed. They were, when dry, duly stored away, thinly and carefully in a dry shed; but, a fortnight after lifting, at least one-third were decayed and perfectly useless. The soil in which they were grown was a light sandy loam, and the position a sunny one.—H. G. Wright, *Bury St. Edmunds.*

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

Canadian Wonder French Bean.—This is the most prolific French Bean I have ever seen. We have gathered many bushels from a few short rows of it during the last five weeks, and there is no appearance of the supply abating. The pods measure from 8 to 12 inches, a length which they attain in a remarkably short time, and when cooked they are tender and delicious in flavour. This Bean grows about 18 inches in height, and requires some little support, or the weight of the pods lays it flat on the ground.—M.

Seedling Potatoes *v.* Disease.—I have raised some seedling Potatoes this spring from Brownell's Beauty, a new American late variety, crossed with Wood's Scarlet Prolific. The seedlings were put into little pots in the spring, and afterwards planted out on a warm south border. At the present time, the haulm and foliage are quite green and healthy, with not a speck of Fungus to be seen; whilst all the stems and foliage of the late Potato crops around them are decayed and the tubers badly diseased. Wood's Scarlet Prolific is a late variety, with strong woody haulm, and red leathery-skinned tubers, so that it resists the Fungus better than any kind with which I am acquainted; but it is only fit for use late in the spring. Brownell's Beauty, however, is an excellent-flavoured late Potato, and the cross between the two may give us a variety nearly disease-proof in bad seasons, like the present.—W. Tillery, *Welbeck.*

THE LIBRARY.

VAN HOUTTE'S "FLORE DES SERRES."

The second instalment of the twenty-first volume of the above-named beautifully illustrated horticultural work, consisting, as has been usually the case lately, of a triple number, containing parts iv., v., and vi. of the volume, has just reached us, and contains twenty-three exquisitely-coloured plates, some of which are individually interesting to horticulturists, but others are illustrations of plants, so old and well-known to everyone, that we are really quite at a loss to understand why Mr. Van Houtte wastes his time and space in giving illustrations of what can serve no good purpose nor be of any interest to any of his subscribers to see, more especially when there are such numbers of recently-introduced and interesting plants, pictures of which (before they are sent out, if possible,) would be most welcome and acceptable to all his subscribers who are on the outlook for really good novelties. As an instance of such things, we may mention the beautiful double form of Begonia diversifolia, recently obtained in his own establishment, and mentioned, but not figured, in these numbers. We have again to notice with regret the number of plates that Mr. Van Houtte reproduces from our own English, and, also, but more rarely, from some of the foreign illustrated horticultural serials. Plate 1 represents Nemostylis geminiflora, a pretty Iridaceous plant from California, introduced into Europe by Mr. Max Leichtlin, of Baden Baden, and producing on slender foot-stalks a brace of round purplish-lilac flowers about the size of a crown piece, which remain open during the mornings of two consecutive days. It requires the slight protection of a frame or cold greenhouse. Plates 2 and 3 show a beautifully-executed portrait of the remarkably handsome Asphodel, introduced into this country by Mr. W. Wilson Saunders, of Reigate, and named by Mr. Baker, of Kew, Hyacinthus candicans, and first figured in the "Refugium Botanicum." It is said to be a native of Natal, and is reported to be perfectly hardy, sending up splendid bloom spikes 4 feet in height, the topmost foot of which is covered with numerous good-sized bell-shaped drooping flowers, of the purest white. Its flowers are produced during late autumn, and it will, doubtless, be considered a great acquisition to the hardy garden border. Plate 4 represents Tigridia Van Houttei, a new and somewhat curious, but otherwise dull and uninteresting species of Irid, raised from seed sent from Mount Istapalapa, in Mexico, to Mr. Van Houtte. The flower-stems are only 1 foot in height, and produce their purplish-brown blooms in the month of July. Plate 5 represents Alstrœmeria peruviana foliis niveo-marginatis, a prettily-variegated-leaved form of the type sent to Mr. Van Houtte by the Marquis Jules Della Rosa. It is said to be most distinct and perfectly constant. Plates 6 and 7 represent Bomarea chontalensis, a trailing Alstrœmeria, from the Chontales Mountains in Nicaragua, sent thence by Dr. Seemann to Mr. W. Bull, and producing large bunches of handsome flowers, the petals of which are alternately rosy-pink and white spotted, and mottled with black spots all over the inside of the flower. It is likely to be almost hardy with slight protection during winter. Plates 8 and 9 represent an almost black Melon, named Melon Noir des Carmes. Plates 10 and 11 are faithful portraits of Messrs. Veitch's beautiful hybrid tea-scented Rose, the Duchess of Edinburgh, the deep claret-colour of which is a complete novelty among Tea Roses. Plate 12 represents a common hardy little border plant, unfortunately burthened with no less than one English and six Latin names, and now appearing under an appellation new at least to me. Its English name is the St. Bruno's Lily, and it is here figured as Paradisia liliastrum. It also owns the following distinctive synonyms in the writings of various botanical authorities of note:—1. Anthericum; 2. Hemerocallis; 3. Phalangium; 4. Czackia liliastrum; and 5. Ornithogalum liliforme. Plate 13 is a portrait of Convolvulus mauritanicus, which Mr. Van Houtte says he has been intending to figure for so long a time that he has mislaid the letter-press he had prepared to accompany it, and can therefore tell us nothing whatever about it, save that it is a native of Algeria, and that it is well suited for hanging-baskets in a conservatory. Plates 14 and 15 are a reproduction of Mr. Bull's plate of his new fringed Pelargonium Queen Victoria, now in course of distribution by him. Plate 16 represents Senecio macroglossus, a south African species, with large yellow flowers produced through the depth of winter, and with foliage exactly resembling an Ivy. Plates 17 and 18 represent Eucalyptus cornuta, a handsome species from south-western Australia, where it is known among the natives under the name of Yeit. The blooms produced annually in the temperate house, at Kew, are just double the size of the specimens preserved in the herbarium, and sent home from Australia by Drummond and other travellers. Plates 19 and 20 represent two small and inconspicuous varieties of Lily from California, named respectively L. canadense parvum and canadense parvum flore luteo, whose flower-stems reach 3 feet in height. Plates 21 and 22 represent the beautiful new Lilium japonicum Colchesteri, recently introduced from Japan by Dr. Wallace, of Colchester, and resembling a very vigorous-habited and profuse-blooming form of the fine, but difficult to manage, Lilium Browni, with the outside stainings of the petals considerably deeper than those of that variety. According to some authorities, this Lily is identical with that introduced a couple of years ago, under the name of Lilium Krameri album, but this point is not yet satisfactorily decided. Plate 23 represents the beautiful rose-coloured Acacia Nemu, described by Thunberg under the name of Mimosa arborea, and by Carrière, in the "Revue Horticole," under the name of Albizzia rosea. Its flowers resemble somewhat those of the beautiful Inga pulcherrima of our stoves, but this variety will, in all probability, be perfectly hardy, young plants only requiring some slight protection till they harden their wood sufficiently to resist the winter frosts. W. E. G.

LUTON HOO PARK.

The Park here is undulating and well wooded, the principal trees being Oak, Ash, Lime, Chestnuts, and Beech of very fine proportions. During the past two years considerable improvements have been made in the grounds, by forming sheltered Rose gardens, and a very interesting wild garden has recently been commenced and is already gay with Clematises, China Roses, and Periwinkles, and partly carpeted with Ferns. The park and pleasure grounds were originally laid out or at any rate improved by "Capability Brown," and some fine well wooded views are obtainable from the more elevated positions. Among the trees found in the grounds are some exceptionally fine Spanish Chestnuts, some of which bear excellent fruit. It may not be generally known that there are many varieties of this tree, and that some bear miserable little fruit of poor flavour, while others are large and in every way excellent. We see no reason why carefully selected varieties of this valuable tree should not be grown in this country for their fruit, more generally than is now the case. The common Beech does especially well here, forming smooth boles of large size, and there are some fine examples of the Copper and Purple-leaved varieties, which form conspicuous ornaments in the spring and early summer months when contrasted with the tender golden-green foliage of Limes, common Beech, Chestnuts, and other forest trees. Oaks and Horse Chestnuts do tolerably well, but when their roots get down into the chalky sub-soil, their tops decay. Conifers are not numerous here, but there are some very excellent specimens of Red Cedar (Juniperus virginiana), and Cupressus Lambertiana, one of the most graceful of all Conifers where it does well. On the lawn there are some noble old Cedars, with remarkably fine trunks, and these, this year, are bearing a fine crop of cones. In the park, we also noted some fine young trees of Wellingtonia and Abies Pinsapo, fully 25 feet in height, and in the most vigorous health. In the shubbery borders the luxuriant growth of the common Laurel struck us as something remarkable, some of the stems and branches being fully a foot in diameter and from 10 to 20 feet in height. The gardener's cottage is partly covered with the glossy-leaved Pyracantha crenulata (a berry bearing shrub from the Himalayas, which is neater in habit than the better known P. japonica), along with Escallonia macrantha, Laurustinus, and other flowering shrubs. The pleasure grounds are extensive, and have recently been much improved by the introduction of shrubs and isolated clumps of Ferns and flowering plants. The lawn slopes gently from the house, and is partly surrounded by an undulating gully or ravine, fringed with fine specimens of Arbutus and other shrubs and Conifers. One specimen of Arbutus Unedo is a splendid example fully 10 feet in height, and just now very attractive, being of a soft brown colour, owing to its having recently cast off its last year's bark. Some beds of Azaleas and Rhododendrons look fresh and healthy, notwithstanding that the sub-soil here is chalky. On one side of this glade is a little Rosery, sunk below the ground level, and sheltered by belts of deciduous and evergreen shrubs. This is principally devoted to Tea-scented varieties, such as Saffrano, Madame Margottin; and standards of the large and vigorous buff-tinted Gloire de Dijon are in the most luxuriant health and blooming freely. Passing on down the slopes we come to another old-fashioned flower garden planted with Tagetes, blue Lobelia, Purple King and Christine Pelargoniums, and some rustic Oak baskets filled with bedding plants are very pretty. A rather novel use is here made of the common Male Fern (Lastrea filix mas) by planting it thickly among Conifers on the open lawn. Even here, on a dry chalky soil, it makes a luxuriant growth, and is very ornamental in appearance; and in moist partially-shaded localities on the lawn it well deserves a place, especially as it is kept within bounds much easier than the common Bracken. At the further end of the glade, above alluded to, a very pretty wild garden has been formed, a strip of Grass turf being enclosed and sheltered by sloping irregular banks, and here some old tree trunks, draped with Periwinkles and Clematis Jackmani, are very attractive. The Roses are especially worthy of notice, the old crimson China being also used among the evergreens with excellent effect. On the sloping banks of turf Echeverias and large-growing Sempervivums are dotted here and there, and both green and variegated Ivy, Virginian Creeper, Cotoneaster, and Ferns, are most judiciously employed for draping the banks and rockwork on either side. There is another very pretty Rosery at the end of this undulating glade planted with all the standard varieties, many of which were in bloom at the time of our visit, the effect of the flowers being increased by the rich masses of Virginian Creeper which is used to drape the wire arches.

The Flower Garden.

The bedding design here is one of the boldest we have seen, the central bed, a circular one, being 35 feet in diameter, and the other oblong beds around are in equal proportion. The beds are effectively planted with Coleuses, Centaurea, blue Lobelias, a dwarf free-flowering strain of L. Erinus speciosa being in excellent condition at the time of our visit, as also were such Pelargoniums as Lucius, Indian Yellow, Vesuvius, Golden Fleece, Christine, and Madame Vaucher. Mangle's Variegated and Lady Plymouth were also in excellent order, associated with the old and ever welcome Verbena venosa. A pair of the prettiest beds here are oblong in shape, and are planted with central blocks of a yellow-margined scarlet-flowered zonal, bearing a resemblance to Golden Fleece, surrounded by a belt of Lady Plymouth, the whole being margined by a broad border formed of diagonal alternate lines of Pyrethrum Golden Feather and the rosette-shaped glaucous Echeveria. The quantity of plants used in this comprehensive design is enormous, fully 200,000 individual plants being employed, and some very rich effects are produced by contrasting velvety Coleus with silvery Centaureas and Golden-leaved Pelargoniums. Many of the plants used here have been raised from spring-sown seeds, and consist of Phlox Drummondii, Tagetes signata pumila, and blue Lobelias. Some masses of Pelargonium Indian Yellow are very bright and distinct, and really have quite a yellow or orange glow when contrasted with the rich purple Verbena venosa, and the same may be said of Lucius, although in a less degree. On a strip of lawn in front of the plant houses in the kitchen garden are some five or six oblong beds, planted with Stocks and mixed varieties of Phlox Drummondii; and these beds are fully equal to any combination of Pelargoniums and Verbenas we have ever seen, and are unusually fragrant. Indeed, these beds are so brilliant in colour, and diffuse such a grateful scent, that we should like to see fragrant annuals more generally used in the arrangement of our flower garden. It is to our public gardens that we look for introducing innovations of this kind; and we should like to see every bare inch of soil in our London parks occupied by Sweet Peas, Mignonette, Stocks, and other odorous old-fashioned flowers; and, if this was done in an intelligent manner, our town gardens might be far more beautiful and attractive than at present, and that at a very slight additional cost.

The Plant Houses.

In one of the plant houses here (a moderately warm stove) we noted a splendid specimen of the old Mandevilla suaveolens, bearing hundreds of its pure white Dipladenia-like flowers amidst foliage of the freshest description. This plant is often subject to the attacks of red spider, but here the growth is as fresh and clean as possible—a fact which we attribute to the genial moisture maintained in the house by carpeting the bare earth, below the stages, with Selaginella. In the same house we also noted the old double-blossomed scarlet Nasturtium blooming freely, and a very beautiful pan of the coral-berried Nertera depressa, which, contrasted with the Selaginella Kraussiana in the same pan, is far more attractive than when grown alone. Another stove here is now very fresh and beautiful filled with Palms, Ferns, and miscellaneous decorative plants. The entire back wall of this structure is packed with peat, which is kept in its place by galvanised wire netting, and is now entirely clothed with Ferns, Panicum variegatum, Begonias, and other plants, which not only add to the appearance of the house, but materially assist in keeping up a genial state of moisture in the atmosphere. Among the plants grown here for the supply of cut flowers is Dendrobium nobile, which is cultivated in quantity, and has the merit of being readily propagated from cuttings of the old pseudo bulbs. In order to flower it freely the plants should be fully exposed to the sun in a warm dry Vinery in the autumn or just after their growth is made, and then they may be removed into a heated moist atmosphere in batches and forced into bloom as readily as Roses or Lilacs. Pancratium fragrans is also grown here as a worthy companion to the snow-white Eucharis or Amazonian Lily. Gardenias are well grown here in pots, and are now profusely covered with flowers and buds. Mr. Budd remarks that a moist atmosphere and a copious supply of weak manure-water are chiefly essential in the culture of these fragrant flowers. Some large masses of the Lily-like Eucharis are also laden with blossoms, and in the same house specimen Crotons, Clerodendrons, Allamandas, Marantas, Ferns, Orchids, and Palms are doing well. The healthy vigour of all the plants grown in these stoves may, in a great measure, be attributed to the genial humidity ensured by covering every available inch of bare soil under the stages with Ferns, Mosses, and Selaginella, and other dwarf-growing shade-loving vegetation. One fine specimen of Aërides oderatum was shown to us as having borne seventy-two spikes of flower at the same time.

The Fruit Garden.

The walls in the kitchen gardens are covered with well-trained fruit trees in full bearing, and, at the time of our visit, the quantity of fruit on these trees was something wonderful. Peaches and Nectarines on the south walls bore remarkable crops of fine highly-coloured fruit, and Pears, in more shaded positions, were also laden with fine fruit. The Peaches are trained on the generally-adopted fan system, the Pears being trained horizontally, and the trees in all cases are furnished to the bottom with healthy growth. Some bush Apples and Pears are also bearing freely. These are not little toy trees, bearing half-a-dozen fruit each, but bushes from 10 to 12 feet high, and as much in diameter, each bearing a bushel or more of fine fruit. In the quarters bush fruits are well represented, but, of course, the season for these is now over. Strawberries in pots, for forcing, are in good condition, and have made a vigorous, but not too luxuriant or leafy growth. It is a common practice to grow Strawberries for forcing behind a north wall or fence, so as to save the trouble of watering as much as possible; but nothing is less likely to produce a good crop than this system. Strawberries intended for forcing should be set out in an open sunny spot, sufficiently wide apart to admit of each plant receiving its due share of sun and air, and, although more trouble in watering may thus be entailed, they will be far more fruitful, even though they may not look so luxuriant as plants grown in shaded situations. The fruit houses here are new and well built, ample provision having been made for ventilation, and they are now well filled with vigorous young Vines, notwithstanding that the latter have only been planted eighteen months. One house of Lady Downes bears an excellent crop of large and well-finished clusters, and the Muscat and Hamburgh-houses are also in excellent condition. The Muscats are bearing their first crops, and have made a well-ripened, short-jointed growth, which augers well for future supply. Two or three dozen pot Vines are also in good condition, notwithstanding that each has produced two rods instead of one, as, in most cases, is the rule. The early Melon-house is now filled with Telegraph and other Cucumbers for winter fruiting; and in the late Melon-house we found a most excellent crop of Eastnor Castle and Queen Emma—both highly flavoured, and in every way desirable varieties.

F. W. B.

A CONSERVATORY CHAPEL.

Since the time that Sir Joseph Paxton conceived the idea of the first Crystal Palace, and carried it into execution, the use of glass in structures of various kinds has widely extended. Among all the purposes which glass structures have been made to serve, the city of Utica, New York, is, so far as I am aware, the first to use one as a receiving-chapel for its dead. As is the custom in modern burial places, the Forest Hill Cemetery at Utica had a chapel with ready access to the receiving-vault. This chapel was built of stone, and was found to be quite unsuited to holding funeral services during the winter months. To remedy this difficulty, Mr. Thomas Hopper, one of the trustees of the cemetery, last autumn conceived the idea of a combined chapel and conservatory, and at once prepared plans for a structure of this kind. The main body of the building is 80 feet by 36 feet, and 25 feet in its greatest height; in addition there is on each side a lean-to or wing, 10 feet wide, 13 feet high, and running the length of the main structure. In front there is a porch or covered carraige-way, where those who attend the funeral can alight without being exposed in stormy weather. The main portion of the building, or auditorium, is arranged for holding the last services; moveable seats and all needful accessories being provided. Under each wing or lean-to on the sides, there being no partition between these and the main building, is abundant room for the display of rare and beautiful plants, which may be arranged differently, if desired, on each occasion. It is certainly a pleasing idea, to see all that is mortal of those, who in life were dear, pass to their final rest amid such surroundings; but this is not the only view to be taken of such a chapel, and, however soothing may be its effects upon the feelings of the bereaved, its sanitary influences are still more important. The ordinary method of holding the services at the open grave in inclement weather, results in more serious consequences than most persons are aware of. Thousands, especially those made feeble by their constant care of the deceased, contract disease which ends in death, by standing on frozen or snow-covered earth during the funeral services. In the usual stone chapels, the case is not much better; being used only occasionally, they are but partially warmed, even when heated at all, but in the conservatory chapel, the heat required to keep the plants in good condition, makes the place always comfortable. The Cemetery Association of Utica have the services of Mr. Roderick Campbell, a young man of education and intelligence, with an excellent knowledge of landscape gardening and horticultural matters in general. We learn that it is the intention of the association to provide houses in which plants may be grown for the decoration of the grounds of the cemetery. Of course the floral decoration of cemetery grounds is nothing new, it being carried on to a remarkable extent at a cemetery with the same name—Forest Hill—near Boston, where there are ample facilities for producing the plants; but the credit of the idea of combining a chapel and conservatory is, so far as we are aware, entirely due to Mr. Thomas Hopper, of the Utica Cemetery Association.—Peter Henderson, in "American Agriculturist."

Hardy Sisyrinchiums.—Why are the Sisyrinchiums so neglected? It is rare to see them in the borders (though happily not so rare as it was). They are most beautiful early-flowering perennials. S. grandiflorum is very attractive, with long grassy foliage, and large pendent purple flowers in February. The white variety, S. g. album, is also good. S. convolutum, with clear yellow flowers, salver-shaped, on erect stems, is now in bloom, and with it the bluish-purple S. mucronatum. S. odoratissimum has white flowers, striped with brown.—Oxon.

THE INDOOR GARDEN.

EARTH PITS.

The object of a cold pit is to get heat from the earth below and to shut out the cold above. The degree of heat thus obtained will vary with the shape. A broad sash, for instance, which rests on the top of the ground, with the sides of the frame considerably exposed, and where the warmth of the earth comes up only from the bottom of the shallow space, will afford only partial protection and may be employed to cover half-hardy plants. In fig. 1, while the glass is much less exposed to the sweep of winds by being nearer the earth's surface, and the sides of the frame are banked up and protected, there is three times the warmth derived from the earth from the two sides as well as the bottom. To this style of pit, the drawings of which we take from the "Albany Cultivator," may well be given the name of earth-pit. By covering the glass sufficiently with mats, &c., in severe weather, such a pit as this will preserve plants from great cold. Fig. 2 represents a good pit, so arranged that the attendant may enter through a door at the end and pass the whole length by the sunk walk. This walk will afford a valuable supply of warmth from the earth at the sides and bottom. Such a pit may be from 10 to 12 feet wide, and of any desired length. One of the first requisites of a pit is perfect drainage.

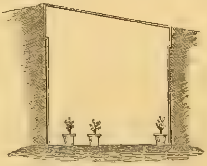


Fig. 1.—Section of Earth Pit.

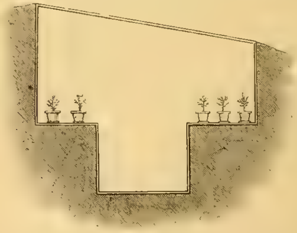


Fig. 2.—Section of Earth Pit with Sunk Walk.

Hyacinths in Pots.—These may be potted from September to Christmas to secure a succession of bloom. October is, perhaps, generally the best time for potting. If new pots be used they should be soaked in water before placing the soil in them. Five and 6-inch pots are the sizes ordinarily used. In potting, one-third of the bulb should be left above the surface of the soil, and the pots should be placed on the level ground out of doors, having previously taken precautions to prevent the ingress of worms through the holes at the bottom of the pots. Cover the crown of each bulb with a small pot, and the whole with 6 inches of cinder ashes, coarse sand, or any porous material, leaving them so covered for at least a month, then removing them at intervals, as required, to a cool frame or forcing-house. As the leaves expand, place the pots close to the glass; give plenty of air and water, and protect from frost.—W. Paul.

Cytisus Everestianus.—This charming shrub, of which I have seen large quantities in Messrs. Low's nursery, at Clapton, is an important rival to the Cytisus racemosus. But that is no reason why one should be discarded in favour of the other; but rather an excellent one why both varieties should be cultivated. C. Everestianus is branching in habit, and differs from C. racemosus only in colour, which is orange instead of being pale yellow. C. Everestianus begins to flower in March, and lasts in bloom till May. It is easily forced, and succeeds perfectly treated in the same way as C. racemosus. It is propagated by grafting upon the latter, or upon kindred kinds, such as C. canariensis and C. rodaphne, which may easily be raised from seed.—W. W.

EDINBURGH GREAT INTERNATIONAL FRUIT AND FLOWER SHOW.

September 15.

When £700 are offered for fruit, besides extra and special prizes, one expects to see a good show, and the horticulturists who visited Edinburgh for this purpose on Wednesday last were not disappointed. It could, however, scarcely be called an international show, for foreign exhibitors were remarkably few; as an exhibition of home-grown produce, however, it was certainly the best of the season, and the arrangements for judging and awarding the prizes, offered to the successful competitors, were all that could be desired. Pines were not largely exhibited, but those staged were exceptionally fine both as regards size and quality. The main interest of the show, however, was centred in the Grapes, which were good throughout, and, as a matter of course, the large or "monster" bunches attracted most attention. Of these large clusters, which are described at length below, there were three this year, coming respectively from Mr. Curror, gardener to R. Douglas, Esq., Eskbank; from Mr. Dickson, gardener to J. Jardine, Esq., Arkleton, Dumfries; and from Mr. Hunter, of Lambton Castle; but it is when we come to the smaller clusters of Muscats, Hamburghs, Alicantes, Lady Downe's, Madresfield Court, and Mrs. Pince, that the progress which modern Grape growers have made is best exhibited. Among these were clusters which looked as firm as though carved out of marble, with berries the size of Plums, and thickly covered with bloom. Peaches were fairly represented, and the same may be said of Melons, Apples, Pears, and Plums, the White Egg Plums or Magnum Bonums being especially fine. Gooseberries and Currants were shown in splendid condition. Messrs. James Veitch & Sons, of Chelsea, and Mr. B. S. Williams staged effective groups of new and rare Orchids, Palms, Ferns, and Nepenthes, and these groups, together with one from the Lawson Seed Company, attracted much attention. Vegetables and florists' flowers were well represented, and the Committee of Management deserve great credit for having done so much towards making the show, from all points of view, such a genuine success.

Collections of Fruit.—Of these, the best came from Mr. Johnston, of Glamis Castle. It contained admirable Smooth-leaved Cayenne and Queen Pines, Royal Vineyard, Black Hamburgh, Black Alicante, and Muscat Grapes of excellent quality; Walburton Admirable, and Royal George Peaches; Pitmaston Orange and Murrey Nectarines, Shipley's Apricots, Jefferson and White Magnum Bonum Plums, Brown Turkey Figs, and two fine Melons—Conqueror of Europe, an oblong netted fruit, and Lord Strathmore, a large globular fruit, similar to Little Heath. Mr. B. Stewart, The Glen, Inverleithen, was second with a good and well-arranged collection, including two splendid Smooth-leaved Cayenne Pines; Mrs Pince, Muscat of Alexandria, Trebbiano, and Black Prince Grapes; Galande and Royal George Peaches, and very fine Brown Turkey Figs. In class 46, for miscellaneous collections of fruits, exclusive of Pines and Grapes, Mr. Mitchell, of Newbyth, Prestonkirk, was first with excellent Apples, Beurré d'Amanlis Pears, Noblesse Peaches, Greengage, Jefferson and White Magnum Bonum Plums, Apricots, Jargonelle Pears, Melons, Morello Cherries, and Warrington Gooseberries. In class 45, for a collection of twelve fruits, exclusive of Pines, Mr. B. Upjohn, of Worsley Hall, Manchester, was first, with very fine Black Hamburgh and Buckland's Sweetwater, Muscat of Alexandria, and Black Alicante Grapes, of excellent quality, the bloom being remarkably well preserved, notwithstanding the long journey to which they had been subjected. In the same collection were Thompson's Pears, Red Roman Nectarines, Barrington and Thames Bank Peaches, Queen Emma and Hybrid Scarlet Gem Melons, very fine; Jefferson's Plums, and a highly-coloured dish of Strawberry Pippin Apples. Mr. Dickson, of Mount Melville, St. Andrew's, was second with a well-grown collection, in which were excellent Muscat Hamburgh, Muscat of Alexandria, and Duke of Buccleuch Grapes, a good Orion Melon, excellent Noblesse Peaches, Rivers's Victoria Nectarines, highly-coloured Louise Bonne of Jersey Pears, excellent Pomme de Neige, or Snow Apples; Magnum Bonum Plums; and a dish of the purple-fruited Guava (Psidium Cattleyanum).

Pines.—It is but rarely that one sees Pines so fine in quality as those that were staged on this occasion. Mr. P. Stewart, of the Glen, Inverleithen, was first with two splendid examples of smooth-leaved Cayenne Pines; and the same exhibitor sent a dozen fine fruit of the same variety, not for competition. Two Queens, weighing respectively 5 lbs. and $5\frac{3}{4}$ lbs. came from Mr. C. Sandford, of Underlay Hall, Kirby, Lonsdale; and a pair of the Charlotte Rothschild, weighing $5\frac{3}{4}$ lbs. each, were shown by Mr. G. T. Miles, gardener to Lord Carrington, Wycombe Abbey, Bucks. Mr. Alexander Ingram, of Alnwick Castle, also sent two well-ripened Smooth Cayenne Pines.

Grapes.—These were, as has already been said, especially well represented, the finest clusters being a monstrous Raisin de Calabre from Mr. John Curror, gardener to Geo. Douglas, Esq., Eskbank, weighing $26\frac{1}{4}$ lbs. Another nearly as large, but scarcely so well shaped, came from Mr. Dickson, gardener to John Jardine, Esq., Arkleton, the variety in this case being Syrian. Both were enormous examples of extraordinary cultivation, and worthy of record as the largest and heaviest clusters ever exhibited. In the class for the heaviest cluster of black Grapes, Mr. Hunter had a well-shaped cluster of Barbarossa, weighing 14 lbs. 11 ozs. This cluster was an excellent example of really good culture and perfect thinning combined, and, as regards thinning, Mr. Curror's 26 lb. cluster of Calabrian Raisin was nearly perfect, the bunch keeping its form without any support. The first place in the class for eight varieties of Grapes was taken by Mr. James Hunter, of Lambton Castle, who had really fine well-finished bunches of Trebbiano, well coloured, and of good form; Gros Colman, very fine, both in berry and bunch; and Royal Vineyard, a fine, well-formed cluster, well finished. We had lost sight of this valuable Grape since it was sent out by Messrs. Lee, of Hammersmith, and were pleased to see its merits done justice to on this occasion. Mr. Hunter's Black Alicantes were perfect in form and colour, as were also Muscat of Alexandria and Burchardt's Prince, which is a Grape of only second-rate quality, but a good wine Grape, owing to the clusters being easily snapped from the Vine, the footstalks of the bunches being very brittle. In addition to the varieties already named, Mr. Hunter had fine clusters of Barbarossa and Seacliffe, well-coloured Black and Calabrian Raisin. Mr. Johnston, of Glamis Castle, was second in this class with Mrs. Pince's Black Muscat, Royal Vineyard, Lady Downe's Seedling, Black Barbarossa, Muscat of Alexandria, Black Hamburgh, Calabrian Raisin, and Duke of Buccleuch, a white Grape of great excellence, and remarkably fine in the berry, which is covered with a thick white bloom; the bunch shown from Glamis was grown on a rod budded on Rivers's Sweetwater in 1874, and was well finished. Mr. Reid, Rockfield, Dundee, was third with eight clusters, consisting of good Lady Downes, Mrs. Pince, Golden Champion, Barbarossa, excellent Muscat Hamburgh, Muscat of Alexandria, Black Hamburgh, and Gros Colman, in good condition. The perfectly finished cluster of Muscat of Alexandria, staged in Mr. Johnston's collection, was awarded the Veitch memorial medal and prize of £5, as the " most meritorious bunch of Muscats staged." In the classes for single varieties of Grapes, two bunches of each, Mr. A. Bruce, Chorlton-cum-hardy, Manchester, was first with excellent Madresfield Court, fine both in bunch and berry, and well-coloured, Mr. Potts, of Manley Hall, being second, with much smaller but still well-grown examples. Mr. Johnston, of Glamis Castle, was first with two bunches of Black Hamburgh, both of which were well coloured, and in first-rate condition. Mr. Jones, of Wynyard Park, Durham, was second with smaller, but even more perfectly finished, clusters. The Black Hamburghs shown in this class were of but average quality throughout. Mr. Dickson, Mount Melville, St. Andrew's, was first with two splendid and perfectly-finished bunches of that most delicious of all black Grapes—Muscat Hamburgh. These clusters were perfect, both in form and colour, and, taking everything into consideration, were, perhaps, the best grown black Grapes staged in the show. Mr. Hunter, of Lambton Castle, was first with two splendid clusters of Black Alicante, large both in bunch and berry, and in every way well finished. Mr. J. Maconnochie, of Cameron House, Alexandria, was second in this class. Mr. W. B. Upjohn, of Worsley Hall, Manchester, was first with two perfect clusters of Gros Colman; Mr. Jones, of Wynyard Park, was second with scarcely less perfect clusters. Mr. G. Greig, of Craigend Park, Silverton, had excellent examples of Lady Downes, which were awarded the premier prize in the class for two bunches, Mr. Fraser, of Rachen House, Biggar, being second. In the class for two bunches of black Grapes (any variety) Mr. P. Stewart was first with Lady Downes, of enormous size and well finished; Mr. Hunter being second, with moderate-sized, but remarkably well-shaped, clusters of Black Barbarossa. Mr. Jones also had very fine clusters of the last-named variety, the collective weight of which could not have been far short of 16 lbs. In the class for the two best bunches of any white Grape, Mr. Curror, of Eskbank, again came forward with well-grown specimens, of superior culture, of his Raisin de Calabre, cut from the same Vine as that which produced his large cluster. Mr. J. Louden, The Quinta, Salop, was first for four varieties of Grapes, and had excellent clusters of Black Prince, Black Hamburgh, Trebbiano, and Muscat Hamburgh, Mr. Bruce being second with a fine bunch of Golden Champion (without a trace of "spot"), Black Hamburgh, Mrs. Pince, and excellent Muscat of Alexandria. In the classes for superior bloom, Mr. John Curror was first with a perfect cluster of Alicante, firm as marble, and of a rich blue colour, owing to the thick coating of bloom. Mr. Methven was first for flavour, with Duchess of Buccleugh, one of the most delicious of all white Grapes. In the class for baskets of Grapes, Mr. Brown, of Kilmaron Castle, Cupar, was first, with finely-hammered and well-finished Black Hamburghs; Mr. Ingram, of Alnwick Castle, was second, with but slightly inferior specimens; whilst Mr. A. Bruce was awarded a second prize for his basket of Muscat of Alexandria. The two collections of Grapes staged in competition for the special prize offered by Messrs. Boyd & Son, of Paisley, were of very good quality, each competitor staging six clusters. The first prize—a silver cup—was awarded to Mr. P. Stewart, of The Glen, a well-known retreat among the mountains near Inverleith. Mr. Stewart had a medium-sized well-ripened cluster of Black Hamburgh, excellent Muscats of Alexandria, Mrs. Pince, Black Muscat, well-grown Black Alicante, and Trebbiano, and the most perfect cluster of Black Prince in the show. Mr. Stewart has reason to prize his cup the more, as he was very closely run by Mr. Hunter, of Lambton Castle, who had a splendid bunch of Barbarossa, weighing from 7 to 8 lbs., well-grown Raisins de Calabre, Black Alicantes, Muscats of Alexandria, Madresfield Courts (well-coloured), and a fine cluster of White Tokay. This group was too good to be passed over, and an extra prize of £3 was awarded it. The classes for single bunches were well contested, and brought together some good clusters of Lady Downes, Black Hamburgh, Alicante, and other varieties. Mr. A. Ingram, of Alnwick, had the best pot Vine, a Black Hamburgh, laden with good clusters, but the fruit was scarcely ripe. Three well-grown pot Vines (Black Hamburgh), struck from eyes in March, 1875, and grown without bottom-heat, came from Mr. J. Simpson, the Gardens, Wortley Hall, Sheffield. In the class for single bunches, Mr. Jones had a fine cluster of the Victoria Hamburgh, and took the first prize for that variety; and Mr. Fraser had the best cluster of Black Alicante. Mr. Stewart, of The Glen, had a very good cluster of Muscat of Alexandria.

Peaches, Nectarines, and Apricots.—These were well represented by about 100 dishes of, in many cases, very excellent fruit. Among the varieties of Peaches staged, we noted very fine specimens of Noblesse and Royal George. Mr. Leyden, of Whitehill, was first with a really good dish of highly coloured fruit, evidently Royal George, Mr. Macdonald being second with Noblesse. Mr. McLean, of Gosford House, was first with Elruge Nectarines, Mr. Jack, of Battle Abbey, being second with smaller but more highly coloured fruit. We also noted good dishes of Elruge, Violette Hâtive, Pitmaston Orange, Victoria (Rivers), Pine-apple, and others from different exhibitors. The best six Peaches came from Mr. A. Brand, Courtown House, Welltown, Ireland, and were really fine examples of Noblesse, four inches in diameter and well coloured. The second prize dish came from Mr. Sharpe, of Pitfour Castle, and were specimens of good culture.

Plums were represented by thirty or forty dishes, all of good quality. The best dish of twelve fruits came from Mr. J. Louden, The Quinta, Salop, who had four of Guthrie's Gage, which were very large; four of Kirke's, a large purple fruit, otherwise known as Dove Bank; and four of the largest and best coloured Magnum Bonum we have yet seen. Mr. Fairgrieve, of Dunkeld Gardens, was second, with fine Magnum Bonums, Kirke's, and Orleans of excellent quality. Among other varieties staged we noticed Greengage, Transparent Gage (true), Jefferson's, well ripened and highly-coloured, Black Diamond, Reine Claude de Bavay, Victoria (Denyer's) of fine quality; and in some of the dishes Pond's Seedling, a variety closely resembling Red Magnum, was shown in excellent condition.

Apples and Pears.—Both culinary and dessert Apples were well represented in all classes. In the class for collections of cooking Apples, Messrs. Cocks Bros., Donnington, were first with New Hawthornden, Lord Suffield, Cock's Favourite, and Warner's King; Mr. Dickson, of Mount Melville, was second with Gloria Mundi, Cellini, New Hawthornden, Stirling Castle, and fine specimens of Lord Suffield, well known as one of the largest and best of all culinary varieties. Among the finest examples of kitchen Apples staged, we noted Cat's-head, Tower of Glamis, Dumelow's Seedling or Wellington, Golden Noble, Ecklinville Seedling, Cox's Orange Pippin, and others. In the class for the six heaviest Apples, Mr. R. Gray was first with very large and well coloured Lord Suffield, but the weight was not stated. In the same class (for weight) were large and finely-grown Warner's King, Gloria Mundi, Ecklinville Seedling, and others. Messrs. Brown, of Stamford, staged the new culinary Apple, Peasgood's Nonesuch, in excellent condition. For dessert varieties, Mr. J. Alton, of Deldawn, Castle Douglas, was first; and we are glad to see that the judges took size into consideration, as well as shape, colour, and flavour, in making their awards, because, somehow or other, a general idea has got abroad that any Apple bigger than a good-sized Crab is unsuitable for dessert. But we have many large varieties, such as Blenheim Orange and Cox's Orange Pippin, which are equally valuable for the dessert or for culinary purposes; and we cannot have too many varieties of this description. In the first prize group above alluded to, we noted Irvine's Seedling, Irish Peach, Reinette de Laak, White Astrachan, Woodburn Pippin, and Minholm Pippin, a rich golden fruit, of good size and really excellent quality. Among other dessert kinds we noted Golden Harvey, Oslin Pippin, Irish Peach (a first-rate Apple, not so generally known as it deserves to be), King of the Pippins, Summer Golden Pippin (of which there were good examples which showed no trace of deterioration), Early Harvest, Cellini, Thorle Pippin, Cornish Gilliflower (a handsome rich golden-yellow fruit of Pearmain shape), Kerry Pippin, together with Court Pendu Plat, Ribston (in good condition), Astrachan (the richest crimson-tinted Apple we have), Red Juneating, and others. The culinary Apples were generally of far superior quality to the dessert kinds. Pears were well represented by good collections and some excellent single dishes. The best collection came from Mr. Ingram, of Alnwick Castle, and consisted of fine fruit of the following varieties:—Beurré Colmar, Joséphine de Malines (the best of late kinds), Beurré d'Amanlis, Beurré Diel, Beurré Léon le Clerc, Marie Louise, Beurré Rance. The first prize for the six heaviest fruits was awarded to Mr. Cairns, of The Hersel, Coldstream, who had very large and perfect Beurré Boussock. The second dish came from Mr. G. Barrie, who had fine specimens of Gros Calebasse. Mr. M'Lean obtained the first prize for flavour with Williams's Bon Chrétien and another variety unnamed. Mr. Peter Lovey, gardener to J. Dickson, Esq., Gothenberg, Sweden, sent six dishes of very fine Pears, each fruit correctly named and neatly labelled.

Melons, Gooseberries, and Currants.—Upwards of thirty Melons were staged, Mr. J. Methven, gardener to Col. Campbell, of Blytheswood, being first in the scarlet-flesh class, with a fine fruit of Hero of Bath, a delicately-flavoured fruit, finely netted. Mr. Kettle was second with Sultan, a smaller fruit, and Mr. Fortune third, with an unnamed variety. In the green-flesh class, Mr. Manson was first with an unnamed, finely-netted seedling, of exquisite flavour, Mr. Thomas Weir being second, and Mr. M'Farlane third, with a larger fruit. Taken generally, the Melons exhibited were very handsome. Gooseberries and Currants were represented by about fifty dishes, and all were far above the average quality. Mr. A. Beach, of Muirhouse, was first with red Gooseberries, Mr. E. George, of Garbally, Ireland, with white Grape Currants, and Mr. Brown, of Abercairny, Crieff, with the finest dish of Red Currants staged.

Miscellaneous Fruit.—Mr. R. Leslie, of Munches, Dalbeattie, had a very good collection of tropical fruits, including fine home grown Oranges, two fruits of Passiflora macrocarpa, which closely resemble small green Vegetable Marrows; excellent fruit of P. quadrangularis, of a glossy olive-green colour, Guavas, Monstera deliciosa, Cape Gooseberries, and egg-shaped fruit of Passiflora vitifolia, delicately mottled with white. In the miscellaneous classes we noted a fine dish of the Cut or Parsley-leaved Bramble, perfectly ripe and of really excellent flavour. A large-berried cluster of the old Black Damascus, was sent by Mr. Doig to be named; this is a really excellent Grape, even larger than Gros Colman, which it closely resembles in bunch and berry, but is superior to it in flavour. Mr. Chas. Turner, Slough, sent a highly-coloured dish of Beurré Boussock Pear not for competition; an excellent dish of the bright red Belle Agathe Cherry, came from Riccarton, and very fine Duchesse d'Angoulême Pears were contributed by Mr. Turner. Two excellent clusters of Bananas were staged, the best coming from Mr. J. A. Fortune, of Castle Milk, Lockerbie, and to this the first prize was rewarded. A miscellaneous collection of sixty-four kinds of Apples, came from Riccarton, and Messrs. Stewart & Mein sent a new seedling Melon, named Sir G. Wolseley, which was of good size and beautifully netted. Mr. Turner had a dish of very large Cox's Orange Pippin Apples.

Stove and Greenhouse Plants.—These were staged in really admirable condition, considering the lateness of the season. The best collection came from Mr. J. Patterson, gardener to James Syme, Esq., Millbank, Morningside; it contained excellent specimens of the blue-flowered Statice profusa, Yucca aloifolia variegata, Erica Iveryana, a noble specimen of E. Aitonii Turnbullii, Phœnocoma proliferum (a well-known everlasting Composite from the Cape of Good Hope), and several good Palms. The second prize group came from Mr. R. Todd, gardener to A. B. Stewart, Esq., Rawcliffe, Langside, Glasgow, who had Erica Marnockiana, a deep red-flowered variety, well bloomed; Vallota purpurea, with fifteen fine spikes; Gleichenia Speluncæ, well grown; a noble specimen of Weddell's Cocos; a well-coloured Maranta Veitchii; and a vigorous specimen of the Thief Palm (Phœnicophorium Sechellarum), with a clear stem of nearly a foot below the sheathing spiny petioles. The first prize for two Crotons went to Mr. Leslie, of Canaan Park, who had well-grown plants of C. pictum and C. angustifolium, Mr. Patterson, of Millbank, being second, with well-grown specimens of the last-named variety. A plant of the old but rare Renanthera coccinea came from Mr. J. Shearer, gardener to J. Henderson, Esq., Gracemount, bearing a finely-branched spike of orange-crimson flowers; to this the first prize was awarded, as the best Orchid in the show, the second prize being awarded to a plant of Aërides suavissimum, bearing three drooping spikes of fragrant waxy flowers. A small collection of three varieties of Heaths came from Mr. Glass, Carbrook, Tarbert, the plants being both well-grown and profusely-bloomed for this season of the year; they were, in fact, good examples of skilful culture.

Dinner-table Palms.—Messrs. Thyne & Co., of Glasgow, were first with six plants, among which were the following:—Cocos Weddelliana, Metroxylon filiare (a very graceful pinnate species, with greenish-yellow spinose petioles), Kentia Balmoreana, Geonoma gracilis, Calamus ciliaris, and others. The Lawson Seed Company were second with a well-grown group, including the distinct deep green Kentia Fosteriana, Dæmonorops palembanicus, Cocos Weddelliana, well known as one of the most graceful of all Palms; and Geonoma gracilis, a plant which rivals the last in gracefulness. Messrs. Methven & Sons also staged a well-grown group, including Geonoma Seemannii, Weddell's Cocos, Areca lutescens, Kentia australis, Areca Baueriana, and others. Messrs. Downie & Laird had Areca lutescens, Thrinax elegans (a slender fan-leaved species), a Geonoma, and others.

Dinner-table Plants.—These were represented by several well-grown groups, the first award for six being made to Mr. J. Currie, gardener to W. Nelson, Esq., Salisbury Green, who had Dæmonorops fissus, an elegant slender-habited pinnate Palm; the white-striped and margined Pandanus Veitchii, Dracæna Macleayii, a deep purple-leaved form of drooping habit; Cocos Weddelliana, and Dracæna Reginæ. In the other collections we noted Curculigo recurvata variegata, Aralia Veitchii, Cyperus alternifolius, Æchmea fulgens, Dracæna Guilfoyleii, D. Cooperii, Yucca variegata, Croton angustifolium, and others.

Ferns.—Of stove Ferns the first prize group came from Mr. J. Green, gardener to P. Neil Fraser, Esq., of Canonmills Lodge, Edinburgh, who had Adiantum cardiochlæna, 6 feet through; Todea intermedia, with fronds nearly a yard long; Pteris umbrosa, a noble, fresh green, and well-grown specimen, fully 6 feet in diameter, and throwing up a vigorous growth of young fronds. In the same collection were also fine examples of Todea superba, with fronds 2 to 3 feet long, and a good example of Adiantum cultratum. Mr. Paul, of Henderson Cottage, Gilmore Place, was second with Todea superba, Leucostegia immersa, one of the freshest and most beautiful of all Ferns; Davallia elegans var. dissecta, a fine plant, 4 feet through; Gleichenia dicarpa, Adiantum Farleyense, and Cheilanthes elegans. Mr. J. Green, gardener to P. N. Fraser, Esq., staged the best four Adiantums; and obtained the first prize with good examples of A. Farleyense, 4 feet through; A. cuneatum, nearly as large; A. assimile, a well-grown specimen of this slender Fern, 2 feet in diameter, and the best plant of A. Capillus-veneris var. magnificum we have yet seen, being fully 4 feet in diameter, and nearly as beautiful as its near ally, A. Farleyense. Mr. Leslie, of Canaan Park, was second with the same varieties, except that the common British Maiden-hair was substituted for A. magnificum. Mr. John Clarke, of Parson's Green, had a noble specimen, fully 4 feet in diameter; and a very fine plant of A. Capillus-veneris var. magnificum. Some very remarkable specimens of Todea superba were staged, the first prize for a single specimen being awarded to Mr J. Currie, gardener to W. Nelson, Esq., of Salisbury Green. This was a well-grown plant, fully 4 feet in diameter. A plant, nearly equal to that to which the second award was made, came from Mr. J. Clarke, of Parson's Green, Edinburgh. Tree Ferns, were well represented by some noble specimens of Dicksonia antarctica, one of the best of which came from Mr. J. Clarke, of Parson's Green, while Messrs. W. Gordon & Sons had a noble specimen in the nurserymen's class, to which the first prize was awarded. Mr. Gordon, of Niddrie, obtained a second prize in the amateurs' class for a good example of Cyathea dealbata. Of British Ferns, a well-grown collection came from Mr. J. Kennedy, gardener to David Murray, Esq., of St. Margaret's Tower. Among these we noticed Polystichum angulare, Adiantum Capillus-veneris, a well-grown plant; a strong-growing form of the Crested Hart's-tongue, and Osmunda Claytoniana. Mr. A. Paul, of Henderson Cottage, Gilmore Place, also sent six well-grown specimens, consisting of the following varieties:—Trichomanes radicans, a good pair, fully 2 feet in diameter; Polystichum angulare cristatum, a well-grown British Maiden-hair, and others. The first prize for two potfuls of Selaginellas was awarded to Mr. W. Forbes.

Coniferæ.—Messrs. Methven & Sons furnished a fine collection of rare Conifers, in tubs, which served to decorate one of the lobbies in pleasing manner. To twelve of these specimens a first prize was awarded, and, among them, we noted the following:—Taxus canadensis aurea, a conical-shaped Golden Yew; Cryptomeria elegans, one of the most graceful of all Conifers; Retinospora obtusa aurea nana; Thujopsis Dolobrata variegata; Taxus elegantissima, a very pleasing Golden Yew; Retinospora filifera, a deep green species—the slender thong-like tips of whose branches droop in the most graceful manner imaginable. We noted a good example of the Chinese and Japanese Umbrella Pine (Sciadopitys verticillata), Chamæcyparis sphæroidea variegata, a very graceful-habited plant, irregularly variegated with yellow. Messrs. W. Barron & Son, Elvaston Nursery, near Derby, staged a very interesting collection of new and rare Conifers, including the following:—Cupressus Lawsoniana elegantissima, a really beautiful and thoroughly hardy soft golden variety, of one of the best known and most attractive of Conifers; Retinospora tetragona aurea, a very dwarf dense-growing species, with distinctly four-sided branches, which grow together in dense masses at the tip, and are there of a golden-yellow colour; Juniperus japonica aurea variegata, a conical dense-growing variety, the tips of the young growth being tinged with golden-yellow; Thujopsis dolobrata Barronii, a seedling raised at Borrowash, and of a thinner and more elegant habit than the normal form; Abies Tsuga Sieboldii nana, a deep green-leaved elegant-habited plant, raised from seed by Mr. Barron.

Miscellaneous Subjects.—Messrs. James Veitch & Sons, of Chelsea, staged a beautiful collection of new and rare Orchids, Ferns, Palms, and Pitcher plants, the latter being especially attractive. In this collection we noted splendid examples of the Californian Darlingtonia, Cephalotus follicularis, with rich purple-tinted pitchers; Nepenthes Sedeni, the rare N. lanata, laden with great wide-mouthed pitchers, each furnished with curiously fringed wings; N. sanguinea, a small but vigorous plant, with light green foliage and crimson-tinted ascidia; N. rubra, N. hybrida maculata, N. intermedia, N. hybrida, and others. Here, under glass shades, we also noted Sarracenia psittacina, the North American Parrot's-bill Pitcher plant, and also the curious Drosophyllum lusitanicum, one of the few plants having revolute venation. Among the Orchids staged in this group were Odontoglossum Alexandræ, Cattleya devoniensis, C. exoniensis, and C. brabantia, all hybrids, originated in, or rather sent out from, the Chelsea nursery; Adiantum princeps, Asplenium ferulaceum, A. speciosum, and other Ferns, also graced this remarkable selection, together with the new and rare lemon-yellow Oncidium concolor, Odontoglossum leopardinum, and two hybrid Lady's-slippers, viz., Cypripedium vexillarium, a seedling hybrid between C. Fairieanum and the better known C. barbatum. The finest Lady's-slipper here staged, however, was a new seedling between C. Stonei and C. barbatum, having dark green leaves, finely netted with darker green, and a two-flowered spike of large purple-lipped flowers, the upper sepal being very broad, and striped with wine red, the petals being green, spotted with blackish-purple. Hybrid Rhododendrons, Amaryllis, several new Aralias, and other foliage plants, also added to the attractions of this fine group, which for variety, rarity, and interest, was the finest in the show. Mr. B. S. Williams staged an interesting group of Ferns, Palms, Orchids, and other plants, among which we noticed Dipladenia Brearleyana, flowering profusely; Adiantum gracillimum, one of the most delicately beautiful of all Maiden-hairs; Amaryllis Mooreana, a large and crimson-flowered form; Echeveria agavioides; Bertolonia Van Houttei; Sarracenia purpurea major; Brainea insignis; Alsophila australis Williamsii; Oncidium tigrinum in bloom, the large yellow lip being peculiarly attractive; a well-grown plant of Nepenthes Sedeni bore eighteen highly-coloured pitchers; and several other species were also well represented. The orchestra in the large hall was decorated in a tasteful manner with stove and greenhouse Palms, Lilies, Dracænas, Ferns, and evergreen shrubs from the Lawson Nurseries, and a very excellent effect was here obtained by staging a splendid specimen of variegated Phormium tenax in front, its noble sword-like leaves standing out in bold relief from the dark green foliaged plants by which it was backed up. A select collection of stove Palms, Dracænas, and Ferns, from the same exhibitors, occupied a stage in front of the last-named group, in which we noted the following:—Pernettya candida, a dwarf dense-growing shrub, with Myrtle-like foliage, and bearing white berries suffused with pink; Todea superba; several fine specimens of Adiantum caudatum, a little-known but graceful Fern, well adapted for suspending in pots or baskets; Sibthorpia europæa veriegata, a delicately-beautiful form of the common Cornish Moneywort, already described and figured in The Garden; Zamia purpurea, a leathery-leaved Cycad, of distinct habit; and Nertera depressa (or coral-berried Duckweed), studded with fruit. Of autumn-blooming Clematises, half-a-dozen well-grown specimens came from the Lawson Nursery Company, and to these the first prize was deservedly awarded. The varieties were C. Mrs. G. Mitchell Innes, a delicate, mauve-tinted, semi-double variety, in the way of John G. Veitch; C. Prince of Wales, a free-growing variety in the way of C. Jackmani, but having deeper plum-purple-coloured flowers—its varieties varying in size, and being from four to six-sepalled; C. Henryii, a vigorous variety, bearing large eight-sepalled flowers of satin-like whiteness, and fully 6 inches in diameter, the foliage being very large and fresh in colour; C. Jackmani, a hardy, free-growing, and well-known kind, with bluish-purple flowers, and C. rubra violacea, similar to the last in habit, but the flowers are a trifle paler in colour. Messrs. James & Robert Thyne, of the Great Western Nurseries, Glasgow, also had a remarkable collection of new Crotons, Dracænas, Palms, and Cycads. Messrs. Methven & Sons obtained the premier award for a well-grown group of twelve stove foliage plants, containing new Crotons, Aroids, Aralias, Dracænas, and other plants. The Lawson Seed Company had also a good collection in the same class, consisting of a new species of Todea, from New Zealand, Dracæna magnifica, Aralia Veitchii, Ficus Parcelli, well-coloured, and the new Artocarpus Cannonii. A splendid potful of Lilium auratum, bearing eight fine spikes of large and fragrant flowers, come from Mr. E. Lothian, 3, Dalrymple Crescent, Grange. This was the finest pot specimen of this Lily we have yet seen, and bore upwards of 100 fine blooms. A smaller specimen, to which the second prize was awarded, came from Mr. Baxter, gardener to R. Ross, Esq., Ravensleigh, Glasgow.

Florists' Flowers.—Gladioli were well shown by several growers. The best collection of thirty varieties came from Messrs. Robertson & Galloway, 157, Ingram Street, Glasgow. Among these varieties we noted Princess Mary of Cambridge, white and purple; Orpheus, white and rose; Meyerbeer, scarlet; Psyche, white and soft rose; Sir J. Franklin, a fine flower of waxy consistence, and a stately spike, soft rose; Undine, white and purple stripe; Schiller, buff and crimson stripe; Medina, scarlet and white; Grand Duchess, white and purple; and Picturata, white, rosy, and magenta, a fine painted flower. Mr. Jas. Service, Dumfries, sent a stand of good spikes, the arrangement of which is worthy of notice; a few sprays of Asparagus were inserted in the Moss around the base of each spike, and this simple arrangement added a grace and lightness to the spikes—an improvement which we should like to see adopted by other exhibitors. In this stand we noted Hercules, vivid scarlet; Siren, creamy-white, flaked with rose; Phidias, crimson and white; Celimene, salmon; Adolph Brogniart, a large-flowered variety of a soft salmon colour; Homer, rosy-lilac, flaked magenta; President Thiers, vivid scarlet; Sylvie, rosy-lilac and white; Beatrice, white, a noble spike; Richard Cœur de Lion, crimson-scarlet; and Mons. Lezouve, scarlet and white. Several other collections were staged. Among new varieties, the best shown on this occasion was Marquis of Lothian, a new seedling. It bears a stately spike of large, well-formed, rosy-lilac flowers; it resembles Lacépède in hue, but is superior to it in size, form, and colour; Murillo, a stately spike of rose and white flowers; Penelope, soft salmon; Pactole, buff tinted with rose; Orphée, white and rose; Shakespeare, white and purple; La France, white; and others. The best twelve Gladioli came from Mr. Codling, who had his new seedling Marquis of Lothian, already described; Robert Fortune, rosy-lilac; Pactole, buff-yellow; Saphire, vermilion and white, a fine stately spike. Mr. G. Ross, of Laurencekirk, also had a good stand of twelve varieties, in which we noted a fine stately spike of Celimene, a large rosy-salmon flower flaked with vermilion; Unique, violet; Lamarque, scarlet and creamy white, and others. Hollyhocks were represented by some very good spikes, notwithstanding the lateness of the season. In the amateurs' classes we noted that Mr. D. McFarlane, gardener to R. Hay, Esq., of King's Meadow, Peebles, was first with seven good spikes; Mr. J. Pearson and Mr. A. Kerr dividing first honours in the class for five spikes. Among the varieties staged we noted Mr. A. Bruce, a clear rosy flower, of good form, and stout in the spike; Queen of Yellows; George Inglis, a deep rosy-crimson flower, good spike; James Don, a deep rosy flower; and others. In the nurserymen's class for eleven spikes, Messrs. Downie & Laird, of the Royal Winter Gardens, West Coates, were first with some really excellent spikes, among which we noted Grande, a fine crimson flower; Mrs. Galloway, soft rose; Beauty of Milford, soft light rose; Mark Gibb Dougall, dark purple; Mrs. Rose, clear rose; James Nelson, rosy-crimson; Niger, dark maroon; Octoroon, deep crimson; and Jane Wilson, soft salmon. A first-class certificate was awarded to Hollyhock Mrs. Codlin, a fine well-formed rosy flower, well set on a stately spike. Dahlias would have been but poorly represented had it not been for Messrs. Downie & Laird, who staged some fine stands of flowers, and who obtained the first prize for twenty-four blooms, Mr. W. Paul, the Crossflat Nursery, Paisley, being second with good flowers; and Messrs. Halfey & Son, London Road, Carlisle, third. Among the best of the blooms shown we noted the following:—Vice President, buff; John Standish, crimson-scarlet, and closely resembling Magnificent; John Neville Keynes, golden-yellow; Willie Eckford, lilac-purple; Mrs. Harris, white tipped with lilac; James Service, purplish-maroon; Julia Davis, buff-yellow; Mrs. Saunders, yellow tipped with white; Royal Queen, white tipped with purple; Picotee, yellow; Monarch, velvety-maroon; Annie Melville, white; Marquis of Lorne, lilac; Charles Backhouse, scarlet; Lady Herbert, white and crimson; Delicata, salmon; Lord Derby, purple; and Flag of Truce, white. A fine stand of herbaceous Phloxes came from Messrs. James Cocker & Sons, Aberdeen. Among the varieties, we noted the following, viz.:—Maid of Honour, white; Shakespeare, rose; Captain Webb, purple; Queen of Whites, snow-white; Duke of Edinburgh, rosy-purple; Princess of Wales, deep rose, dark eye; Bridesmaid, white, lilac eye; and Mr. Disraeli, a curiously-mottled rosy-lilac flower, of good form, dark eye. Messrs. Dickson & Co., 1, Waterloo Place, also had a good assortment of seedling Phloxes, the flowers being of remarkable size and substance, the colours varying from deep crimson to pure white. We are sorry these varieties were not named, as they well deserved more than a passing notice. Of Asters, the best stand of twelve French flowers come from Mr. Fenwick, Netherwitten, near Morpeth, and are perfect in shape, the eyes well filled up, and the colours varying from white through all the shades of soft rose to a deep purple. Mr. Codling had also twelve larger finely-frilled flowers, but not so perfect in shape as those staged by the first-mentioned exhibitor. In the class for German or quilled flowers, Mr. Codling, of North Side, Morpeth, was first with very perfect cushion-like flowers, the colours varying from white to blue, lilac, purple, rose, and crimson. Notwithstanding the lateness of the season, some very good stands of cut Roses were shown, the best being that from Mr. A. McMillan, gardener to J. Macburn, Esq., Broad Meadows, who had excellent blooms of Gloire de Dijon. Souvenir d'Elise, white, salmon centre; Madame Villermoz, white; Dr. Andry, crimson; Leopold Hausburg, rosy-crimson; Alfred Colomb, crimson-purple; Josef Fiala, crimson; and others. In the second prize group, from Mr. Crichton, we noted Madame Victor Verdier, Sénateur Vaisse, La France, and others, in excellent condition. Messrs. Hugh Dickson, of the Belfast Nursery, also sent three large stands of cut Roses, including many of the most popular Hybrid Perpetuals, nearly as perfect as Roses in June.

Bouquets.—Messrs. Drummond Bros., 52, George Street, Edinburgh, sent seven tastefully arranged bouquets, formed of choice fragrant flowers, such as Stephanotis, Eucharis, white Lapageria, Tea Roses, Gardenias, and Tuberoses, neatly and lightly garnished with Ferns and other foliage. The same firm also furnished funeral wreaths and a funeral cross formed of Gardenias, Tuberoses, Stephanotis, Sweet Peas (white), and Ferns, and here and there sprigs of the common Heaths, such as Ling, were introduced with excellent effect. The charms of these were enhanced by a group of well-grown decorative Palms from the same exhibitors. Messrs. Downie & Laird, 17, South Frederick Street, West Coates, sent three tastefully arranged bouquets, which, being staged in front of a pier glass, had an attractive appearance.

Vegetables.—These were in most cases excellent, and the collections were very neatly set up. Mr. A. Anderson, gardener to Mrs. W. Brown, Ashby, was first with white and red Celery, excellent white Stone Turnips, Lettuce, Endive, and young Onions; Telegraph Cucumbers, Chicory, Mustard, Cress, Radishes, Gherkins, Beet, Black Spanish Radish, and the usual flavouring herbs. The first-prize collection of vegetables came from Mr. C. Sandford, gardener to the Earl of Bective, Underlay Hall, Westmoreland. It contained Veitch's Autumn Giant Cauliflower, James's Carrots, Canadian Wonder French Beans, Banbury Onion, Scrymger's Brussels Sprouts, Globe Artichokes, excellent Savoys, and long White Marrows, American Late Rose Potatoes, Trophy Tomatoes, and excellent red Celery. Mr. J. Lowe, gardener to John Paton, Esq., Viewforth, Stirling, was second with a well-grown basket of Peas, Beans, fine Leeks, Potatoes, Cucumbers, and Tomatoes. Seventeen collections of vegetables were staged, and in nearly every case the exhibits gave evidence of good culture. Among other vegetables set up were excellent Leeks and very large Onions. Mr. N. Glass, of Carbrook, Tarbert, was first for six well-grown Leeks; Mr. M'Intyre, of Kingsmuir Hall Gardens, Peebles, being second. Mr. Marshall, gardener to Miss Hay, Kingston Grange, was first with twelve remarkably fine Onions; Mr. M'Farlane being second also with good examples. Of Cucumbers, twenty-five brace were staged in competition for Mr. Monro's special prize, offered for the best brace of his new Duke of Edinburgh, and it was curious to note the disparity of size, colour, and other particulars in the fruit staged—that is, supposing them all to have been really the true Duke of Edinburgh, which we much question. Many of the braces were very unequal, and the first prize was eventually awarded to the smallest, but certainly the best brace sent in, by Mr. P. Stewart, of the Glen, Inverleithen; Mr. E. Bennett, of Rabley Gardens, being second; and Mr. Brotherston, of Tynningham, third.

No. 201.] SATURDAY, SEPT. 25, 1875. [Vol. VIII.

> "This is an art
> Which does mend nature: change it rather: but
> The Art itself is Nature."—*Shakespeare.*

FRUIT GROWING FOR MARKET.

One of the largest and best of all our metropolitan fruit gardens is that of Mr. F. Dancer, at Chiswick—an establishment in which some of the finest of all the hardy fruits sent to the London markets are grown. Apples, Pears, and Plums are specialities here, leaving out of the question an undergrowth of Strawberries, Gooseberries, and Currants, fruit from which is sent by the ton to Covent Garden during the early summer months. It was formerly the practice to grow Apples and Pears as standards or orchard trees, but this plan is now being superseded by bush trees, which are found to produce fruit of finer quality than standards, and they are also more under the control of the cultivator, inasmuch as they can be either manured or root-pruned as circumstances may require, and top-pruning is likewise greatly simplified, while, in certain cases, it is rendered wholly unnecessary owing to the dwarfing and fruit-producing influence induced by the true Paradise stock, which Mr. Dancer almost exclusively employs for Apples, just as the Quince is generally and very successfully used for Pears. The scions are worked near the collar of the stock, or just sufficiently high above the roots to keep the base of the graft above the soil when planted. Were this not the case, it would throw out roots above the junction of stock and scion, which, as a matter of course, would nullify the influence of the dwarfing power of the stock. Many of the finest and most prolific of our Apples, Pears, and Plums are grafted here every spring, so that quantities of vigorous young trees are always in readiness to re-place old or second-rate varieties. As has been already observed, all the old orchard trees, most of which were worked on free stocks, are being discarded in favour of bush specimens on stocks, the influence of which is well known. The stocks used for Plums are the Muscle, Myrobalan, and Brompton or free stock; but the influence of these on such tender varieties as the Prince of Wales, one of the earliest and most prolific of all market Plums, is very imperfectly understood. Mr. Dancer grows this variety by the ton, and annually sustains loss through a large proportion of the trees dying off, an occurrence not easily explained, although some attribute it to the influence of severe frosts, while others maintain that it is owing to an imperfect union with the stock. Other Plums largely grown here are Prince Engelbert, of which variety a plantation of upright, vigorous young trees, has produced about 20 tons of fine fruit this season. Poupart's Plum—or Purple Gage, as it is sometimes called—is also largely grown, the fruit being about the size of a Greengage, and similar in flavour. The tree is a good grower, and a prolific bearer—indeed, Mr. Dancer's trees were literally fountains of fruit this year. Another excellent market Plum is Pershore, a yellow variety, raised from the White Egg Plum, said to be one of the best for culinary purposes, and a variety that yields wonderful crops. One of Mr. Dancer's favourite Plums, however, is Belle de Septembre, a large oblong red Plum, of clean upright habit of growth, and a prolific bearer. This variety, and Autumn Compote, another excellent red sort, are valuable culinary kinds, and also useful for making jellies or jams. The last-named kind is a favourite among the fruit salesmen in the London markets, who call it the Late Victoria, which variety it somewhat resembles, but it is even more prolific and valuable. Other good standard varieties are Pond's Seedling, Greengage, and, last, but not least, Mitchelson's Plum, an excellent kind for compotes or jellies, and one of which Mr. Dancer has upwards of a 1,000 fine young trees. This is a reddish-purple fruit of medium size, and yields immense crops. Many other kinds are grown, but the above are those grown for the main crops, and all of superior excellence as market fruits. Growers who pin their faith to the old orchard system of Apple-growing, and who smile at the mention of Paradise and bush trees would do well to visit Mr. Dancer's grounds. Bush trees are not necessarily toy trees or puny little pyramids, perfect in shape but unfruitful, as some cultivators have found them to be. The kinds grown here are Stirling Castle, evidently a seedling from the Hawthornden. Its fruit is perfectly shaped and clean, and averages 3 inches in diameter, with a clear golden-yellow skin when ripe. Some bush trees of this variety on the Paradise stock, three to four years from the graft, are now bearing upwards of a bushel of fine fruits each. A quarter of Small's Admirable, another excellent culinary Apple, was very heavily cropped at the time of our visit, and as a variety for market it deserves to be largely grown, as much for its fine quality and appearance as for its prolific habit. Cox's Orange Pippin, an excellent variety, which, like the old Blenheim Orange, is good either for dessert or culinary purposes, is much grown, the fruit being of large size, nearly equalling in this respect the last-named variety, and very highly coloured. We noted some trees of this bearing heavy crops; and a plantation of about 400 young trees on the Paradise stock, three years from the graft, are fruiting well, the fruit itself being exceptionally large and highly coloured. Another variety grown extensively, is Warner's King, a noble culinary Apple, some of the fruits on young grafted trees weighing over 1 lb. each. Reinette de Caux, Dutch Mignonne, New Hawthornden, and that excellent kitchen Apple Lord Suffield, are also bearing heavy crops of fine fruit. "Quantity and quality" is the maxim of all who grow good fruit for the market; and here it is not too much to say that thousands of bushels of Apples, of the best quality that our climate and good culture are capable of producing, are sent every year to Covent Garden from Mr. Dancer's plantations at Chiswick. The Apple is the finest and most generally useful of all our hardy fruits, and one or more of the above varieties should find a place in every little cottage garden in the country. A national fruit garden is too much to hope for at present, but if country landowners would instruct their gardeners to graft and distribute the finer varieties of Apples among the cottagers on their estates, a vast amount of real and lasting good would be done. The example would soon be followed, and the result would be the production of large quantities of fine and wholesome fruit, which would be a gain to the country of so much food, and that of the most healthful description. We found at Mr. Dancer's some of the finest and most vigorous bush or pyramid Pears on the Quince stock we have yet seen, and in nearly every case the trees were heavily laden with splendid fruit. Among the varieties grown we noted Beurré Hardy, a clean and shapely tree, and a good cropping variety grown on this system; Doyenné du Comice, one of the finest-flavoured of all Pears, is also very prolific; together with Marie Louise, Marie Louise d'Uccle, Huyshe's Victoria, and other new varieties; Souvenir du Congrés, a new and excellent fruit, raised as a seedling from Williams's Bon Chrétien (Bartlett), does well here; and Mr. Dancer showed us a bushel or two of large highly-coloured fruit produced by his young grafted bush trees. These fruits averaged about two to the pound, and possessed a most delicious flavour, resembling, in the latter respect, its parent; but the fruit is larger, more irregularly shaped, and of a more delicate aromatic flavour, without the bitterness at the core so characteristic of Williams's Bon Chrétien. Louise Bonne of Jersey, a very distinct Pear, of free-growing habit, and one which bears cutting in well, is here very productive, the fruit being large and highly coloured. This is one of our handsomest dessert Pears, and its flavour is very delicate and distinct from that of any other Pear with which we are acquainted. The following list comprises Mr. Dancer's best Pears for market purposes, viz.:—Williams's Bon Chrétien, Souvenir du Congrés, Louise Bonne of Jersey, Doyenné du Comice, Madame Treyve, Marie Louise, Marie Louise d'Uccle, Beurré d'Assomption, Maréchal de la Cour, and Durandeau. Beurré d'Assomption is an excellent fruit, and, like Souvenir du Congrés is a seedling from Williams's Bon Chrétien. Other varieties grown here consist of the excellent but little-known Beurré Superfin, Beurré Clairgeau, Beurré d'Amanlis, Bishop's Thumb, Hessle, and, for early fruit, the little Citron des Carmes. In looking over Mr. Dancer's plantation one cannot help remarking the vigorous freshness and productiveness of the little bush trees, both of Apples and Pears, this being, in part, owing to the deep well-worked soil in which they are planted, and partly, doubtless, to the shelter which the long rows of so low-growing trees afford each other. One scarcely expects to see luxuriant growth and extraordinary crops of fine fruit together on the same trees, and yet such is undoubtedly the case here. No doubt many fruit growers obtain good crops for a few years by starving the trees at the root, but Mr. Dancer evidently prefers a good well-tilled soil, and substantial root-food in the shape of "leather dust" and farm-yard manure; and, it may be asked, what is leather dust? Well, it simply consists of leather refuse mixed with quicklime and turned over until the whole is decomposed, and, judging by the results obtained from the trees now under notice, it forms a lasting and valuable dressing for fruit trees; but it is one which, we are afraid, will be found somewhat difficult to procure in places far removed from towns. F. W. B.

ALPINE PINKS.

These are a numerous and brilliant race of flowers. Our pretty Maiden Pink and the Cheddar Pink are native representatives of the great number of kinds which inhabit the rocks, hills, and highest pastures of the Alps. From the more southern rock-haunting species we obtain our beautiful races of Carnations, Pinks, &c. A good many of the species are heath, dry meadow, or maritime Alps plants, or shore plants, such, for example, as the Fringed Pink (D. superbus); and, in consequence, so far as our climate is concerned, they are almost at home in lowland gardens. But some, on the other hand, are among the very highest Alpine plants, as, for example, the Glacier Pink and the Alpine Pink. With a very dwarf-tufted habit, they have flowers as beautiful and profuse as the Gentians or Primroses. Indeed, for a display of handsome and brilliant flowers, or dwarf-tufted plants, no plants equal the Alpine Pinks when seen in vigorous tufts on Mont Cenis, or other high mountains which they inhabit. Fortunately, they show all this beauty in our gardens under simple culture. They thrive in sandy or gritty loam, moist, and in a fully exposed position. If planted in borders, they should be surrounded by half-plunged pieces of broken rock to protect them. Alpine Pinks suffer from two evils in our gardens; they are very liable to degenerate from seed when that seed is gathered where great numbers of different species are grown together. They are also in some districts extremely liable to perish from wireworm. Therefore, the usual means should be taken to destroy this pest. V.

ROSE BEAUTY OF GLAZENWOOD.

Mr. Woodthorpe's new Japan Rose Beauty of Glazenwood, will be, without doubt, the most striking novelty introduced for many years. A Rose of golden-yellow, striped and flaked with scarlet or vermilion, sounds like a dream or a fairy tale. It is, nevertheless, a reality, attested by Mr. Smith's brilliant plate in the "Floral Magazine," in which Mr. Woodthorpe considers full justice is not done to the richness of colouring of the Rose itself. When I was in Essex, in July, I had the pleasure of seeing fine healthy trees of this remarkable Rose, but I was a little too late for the flowers. Some blooms had just been sent to Mr. Smith for making his illustration, which may have been seen already by some of your readers. I am glad to testify to the very vigorous growth and hardy character of this Rose. The heads of standards of it consist of long graceful shoots from 4 to 6 feet in length, which were last winter perfectly uninjured even to the tips, though quite unprotected. Beauty of Glazenwood is a summer-blooming variety, and will make a beautiful climber or an equally fine standard, flowering, as it does, from every eye on its long pendulous shoots. Mr. Woodthorpe describes it as strikingly lovely in the bud state. It is like Madame Falcot in its yellow ground, while the vermilion flakes and stripes on the petals resemble "the colouration of a Tulip," and it has also a delicate fragrance. It will certainly prove an important and charming addition to our already rich array of Roses, and be most valuable in hybridisation, on account of its peculiar colouring and distinctness.

Torquay. Henry Curtis.

NOTES OF THE WEEK.

—— Dr. J. T. Boswell Syme, has sent us a specimen of excellent Figs grown at Balmuto, in Fifeshire. "Figs ripen" he remarks "annually at Balmuto without other protection than that afforded by a south wall." Balmuto House is three miles from the sea, as the crow flies, and 350 feet above the sea level.

—— In the neighbourhood of Paris, the last census shows that there are 5,715 masters and men engaged in market gardening. The receipts are stated to amount to £589,428 in round numbers; and, amongst the items of expenditure, £65,125 is set down for manure. The property and working stock are valued at £432,018.

—— We noticed lately some unusually ugly standard Roses festooned with Convolvulus major in a garden at Turnham Green. If standard Roses are still to be grown in our gardens it is well to veil their awkwardness by some graceful climbing plant that will not exhaust the ground.

—— Mr. Henry Ormson has erected over one of his offices at the entrance of the Stanley Works, Chelsea, a very elegant house-top conservatory, which may be seen with advantage, by those interested in roof winter gardens. It is the most graceful in design of any of its class about London.

—— Mr. Charles Baltet, writing in the "Bulletin d'Arboriculture," states that, in his opinion, the Pear Beurré Père is the same as the older and well-known Beurré Bretonneau; also, that the habit, the wood, the leaves, and the buds of the specimens of Brockworth Park he has been supplied with announce it to be the same as Bonne d'Ezée.

—— We have received, during the past week, Mr. George Such's list of stove and greenhouse plants, Orchids, Ferns, Palms, &c., published by him at South Amboy, New Jersey; the beauty of the typography, quality and tone of paper, &c., are of remarkable excellence. Mr. Taplin, formerly superintendent at Chatsworth, has had charge of Mr. Such's collection for some years past, and has made the collection the fullest and best grown of its kind in the United States.

—— The Vineries at Clovenfords are just now well worth a visit, a house of Lady Downes, 200 feet long, and a similar house of Black Alicante and Gros Colman, affording examples of unusually good culture. The clusters of the last-named variety average fully 2 lbs. each, and the weight of fruit in the house of Black Alicante and Gros Colman is computed to be 3,000 lbs., or considerably more than a ton, and the house of Lady Downes must contain nearly as large an amount of fruit.

—— The Rev. George Meares Drought, writing from Ireland to the "Times," says:—"For three years I have lived in a town, and during that time my sitting-room has been free from flies, three or four only walking about my breakfast-table, while all my neighbours' rooms were crowded. I often congratulated myself on my escape, but never knew the reason of it until two days ago. I then had occasion to move my goods to another house, while I remained on for two days longer. Among other things moved were two boxes of Geraniums and Calceolarias, which stood in my window, the windows being always open to the full extent, top and bottom. The boxes were not gone half-an-hour before my room was as full of flies as those around me. This, to me, is a new discovery, and perhaps it may serve to encourage others in that which is always a source of pleasure, and which now proves also to be a source of comfort, viz., window gardening."

—— The Cryptogamic Society of Scotland will hold its first annual conference at Perth, on September 29 and 30, and October 1. The following is the programme of the meeting:—Wednesday, September 29, field excursions to Moncreiffe, Dupplin, and Scone. Thursday, September 30 (1) arrangement and examination of specimens; (2) business meeting (reading of papers and communications, &c.); (3) Fungus dinner. Friday, October 1, show of Fungi and other Cryptogamic plants in the City Hall, Perth. All Fungi, &c., intended for exhibition, must be delivered (addressed to the care of the "Keeper of the City Hall, Perth") not later than 10 a.m. on Thursday, September 30. Ferns, in pots, must be delivered between 8 and 10 a.m. on Friday, October 1. Botanists (especially in distant localities), who purpose attending the conference, are requested to give early intimation of their intention, in order to facilitate arrangements. Further information may be obtained on application to the general secretary, Dr. Buchanan White, Rannoch, Perthshire; or the local secretary, Mr. J. Young, Tay Street, Perth.

—— Beautiful blooms of Betteridge's new Asters have been sent to us by Messrs. Carter & Co., of High Holborn. They belong to the German or Quilled section. One, named Purple Prince, has very large finely-formed, deep purple blooms, 3 inches in diameter; and Queen of Novelties has rosy flowers with a clear white centre, similar to that which may sometimes be seen in the flat-petalled varieties.

THE INDOOR GARDEN.

COOL ORCHIDS AT CLOVENFORDS.

Although the system of growing many of the New World Orchids in a cool temperature is now adopted in most gardens, the most sanguine advocate of cool treatment would hesitate to recommend the Old World Aërides and Vandas to be grown in that way. We did not expect to see Vandas and upland Odontoglots, Aërides from the warm valleys of the Indian Archipelago, or the Phillipines, and the cool air and moisture-loving Alpine Masdevallias associated together in cultivation; and as they are, for the most part, scattered over the earth's surface in different localities, and in atmospheres and temperatures widely dissimilar, it certainly seems reasonable that they should require different management with us in England; but the fact is, Orchids are not the exclusive plants one would imagine them to be from their geographical distribution, and Mr. Thomson's Orchid-house, at Clovenfords, furnishes ample proof that, however convenient separate houses may be for cool and warm Orchids, they are by no means absolutely necessary; therefore those who have not such accommodation should not be deterred from attempting their cultivation. We find tropical and hardy British or North American Ferns growing well in the same house side by side; and why should not Orchids be treated in a similar manner? The fact is, do what we will, it is next to impossible to give each plant in our gardens the natural conditions under which it grows in a wild state; and, even if this were possible, it would at times be far from desirable. The Orchid-house at Clovenfords is a small lean-to structure with a southern aspect, yet the only shading material employed is a slight coat of blue-wash brushed over the glass outside. The house is heated in the ordinary way with hot-water pipes; and, in order to secure an ample supply of moisture, Mr. Thomson adopts a simple plan, *i.e.*, covering the pipes with a coat of Sphagnum Moss, which is kept constantly moist by occasional sprinklings; this is an excellent evaporator, far more efficient than troughs placed on the pipes. Very little fire heat is used in summer, and Mr. Thomson states that the thermometer frequently falls to 40° during the coldest weather in winter, although the average winter temperature is 45°. Under such circumstances, it is not a little surprising to find Vanda suavis making most vigorous growth after having been wintered in so low a temperature, but such is the fact; and one plant, of an exceptionally fine variety, thus treated, produced a spike on which were nineteen great waxy flowers, which were exhibited at South Kensington last spring. It is instructive to notice the great breadth and substance acquired by the foliage of these plants since they have been subjected to this—for East Indian Orchids—exceptionally cool temperature. At the time of our visit a plant of Aërides nobile bore a fine drooping spike of fragrant blossoms, and other Aërides and Vandas exhibited the most luxuriant health, the leaves being remarkable both for size and substance. Vanda cœrulea was flowering along with Odontoglossum Alexandræ and Oncidium Krameri. Among the Lady's-slippers we found examples of C. Harrissianum, C. insigne and C. villosum, three of the freest flowering plants in the genus, together with C. hirsutissimum, C. barbatum, C. Hookeri, and the long-tailed C. caudatum. Most of the best Cattleyas and Lælias are also grown in the cool way described, together with Lycastes, Masdevallias, Cœlogynes, Disa grandiflora, Pleiones, Trichopilia suavis, deciduous Calanthes, the pretty little white-flowered Odontoglossum pulchellum, and many others. The great secret of Orchid growing in a cool temperature is to keep the atmosphere nearly at saturation point; and in sharp, frosty weather this is especially desirable, otherwise the leaves become dried up and shrivelled, and the plants get thereby much weakened. If this fact is borne in mind there are but few plants, if we except Phalænopsids, that may not be grown in the manner above described; indeed, Mr. Thomson's experience in Orchid growing proves what we have repeatedly urged, viz., that Orchids may be well grown in any moderately-heated structure, and quite as economically, both as regards first cost and after-management, as Ferns and other stove plants.

F. W. Burbidge.

THE KNIGHT'S STAR LILY.

(HIPPEASTRUM VITTATUM.)

Knight's Star Lilies, or varieties of Hippeastrum vittatum.

This showy warm greenhouse, or rather stove, plant is one of many beautiful South American or West Indian bulbs nearly allied to Amaryllis, and very valuable for decorative purposes, especially as they may be forced into flower in succession, like Hyacinths, at almost any season of the year. There are several other species of Hippeastrum in cultivation, the most distinct of which is H. aulicum, equestre, and pardinum, the last being of comparatively recent introduction, and one which, of late years, has been extensively used by cultivators for crossing with varieties of H. aulicum, the result being a race of very fine-flowered hybrids, the colours of which vary from pure white through all the shades of rose, rosy-crimson, maroon, and deep velvety maroon-crimson, some of the forms being richly mottled, striped, or barred with a deeper colour. This plant, of which two or three forms are represented in our engraving, has long been known in gardens; and, although seedlings vary much in size of flower and colour, the progeny of this plant may at once be recognised by a vivid white stripe down the centre of each petal, which gives a stellate appearance to the flowers. One of the most distinct and pretty of all the forms of H. vittatum, however, is that named H. vittatum Harrisoniæ, a kind introduced from Lima a year or two ago, by Mr. W. Bull. It has a stout glaucous-green scape, bearing a two-valved spathe, from which issue several (about five) pedicellate flowers, which are remarkable for their long narrow tubes, fully $3\frac{1}{2}$ inches in length, the segments of which are slightly spreading at the tip, opaque waxy-white, and marked on each of the six segments with two broad deep crimson lines, running a considerable distance down the tube. Messrs. Vilmorin, of Paris, are also noted for the fine varieties which they possess of H. vittatum. As regards culture, little need be said. The bulbs should be potted in rich sandy soil, and the pots should be well drained, so as to allow of the plants being copiously watered when making their growth, without any danger of the soil becoming stagnant. After potting, the bulbs should be placed in a moderately warm pit or frame, giving air freely, until the flower-spikes make their appearance (which they do sooner or later, according to the vigour or ripeness of the bulbs); after that they may be removed to their blooming quarters in the conservatory or warm green-house. Hippeastrums produce their flower-spikes just before the young foliage makes its appearance, and, by the time the beauty of the flowers is over, the young leaves will be about half grown. It is, therefore advisable to return the plants to an airy pit or frame until their growth is completed, for the next season's flowering depends entirely on the full and healthy development of the foliage. It is, nevertheless, a common practice to see both Amaryllises and Hippeastrums thrown under stages or potting benches, and left there until they are again wanted for starting into bloom. Where this is pursued it need not, therefore, be a matter of surprise if the flower-spikes are puny and the blooms themselves wanting in substance and colour. By re-potting and starting bulbs of these Hippeastrums into growth, in succession, few plants of a decorative character are more useful or ornamental, their stately flower-spikes having a strikingly beautiful appearance when ranged in large drawing-room vases along with the sword-shaped leaves of the common Yellow Flag of our river banks. These are readily obtained during the summer months, and so nearly resemble the leaves of the Hippeastrum that only a close observer would detect the difference, and thus the flowers look as if associated with their own foliage, which, for reasons already stated, they could not be. F. W. B.

THE FANCY PELARGONIUM.

Although so much has been written respecting the cultivation of this most useful decorative plant, it is seldom seen in anything like the perfection of which, when properly cultivated, it is capable; and yet, attention to a few simple rules is all that is requisite to produce satisfactory results. I purpose, in this paper, to treat, firstly, of its capabilities as a subject for house, conservatory, and table use, in small 4-inch pots; and, secondly, of its fitness for the exhibition tent In order to have small plants in perfection, they require treatment different, in many respects, from that accorded to large specimens. The principal thing is to select kinds possessing a free, robust habit of growth, and with great freedom of bloom, rather than florists' varieties. As small decorative plants, the kinds which I have proved from experience to be the best are the following, viz.:—Delicatum, Princess Marie (a very old sort of Gaine's), Ellen Beck, Lucy, Marionette, Celestial, and Effie Deans. The above-named varieties are all free, robust growers, and most profuse bloomers. Presuming the stock is bought from a nurseryman, the best way of commencing is as follows:—As soon as the plants are received, which should not be later than the end of September, examine the roots, and, if pot-bound or moderately well rooted, re-pot at once into the blooming pot—a 48-sized one—well drained with about an inch of broken potsherds. The compost best suited for them is good fibrous loam, a small quantity of peat or leaf soil, decayed manure, and a liberal allowance of good silver sand. When potting, press the soil as firm as possible, a rule which applies with equal force to all classes of Pelargoniums. Place the newly-potted plants in a light house as near the glass as possible; do not, on any account, shade them, and keep the hot-water pipes warm at night, and, in fact, throughout the autumn and winter. This class of Pelargoniums will not thrive without fire-heat; give as much top ventilation as the state of the weather will admit, but do not open the side ventilators except when absolutely necessary to keep down an unusually high temperature or to thoroughly dry the house in winter. Few plants are injured more by injudicious ventilation than fancy Pelargoniums; indeed, it is through this cause, and to careless watering, that most of the failures in cultivating them occur; therefore, if possible, never ventilate at the sides of the house in winter. With regard to the watering after potting, if the soil is moderately moist (and it should never be used in a dry state) allow a day to elapse before giving the first soaking of water, which should be given with a rosed-pot, and sufficient in amount to run through the bottoms of the pots; afterwards, of course, water individually with a long-spouted pot; this will avoid wetting the foliage. Let one rule always be adopted in this operation, and that is, first let the plant require water, and then give a thorough soaking; nothing is worse than partial waterings. With regard to manure-water I do not advise much; but a weak solution of sheep dung and soot may be given occasionally with advantage after the bloom buds are showing. Do not allow the temperature of the house to get below 45° at night, with a rise of 10° during the day. After the plants have recovered from the effects of the potting, and have made a few joints of young wood, stop them, and they will immediately break strongly. As regards stopping, be sure, before doing so, that the shoot is strong and robust, if not, let it remain until it becomes so; nothing is gained by undue haste, but loss often occurs, as a weakly shoot generally breaks badly; by attention to these seemingly trivial matters success will be the result. The plants, being now in very small pots, every possible encouragement must be given them. Keep a very keen lookout for greenfly, and fumigate immediately it is observed; avoid overcrowding, and keep the plants thoroughly clear of decayed leaves, and frequently turned round on the stages. When the shoots have grown a few inches in length, place a few short sticks round the insides of the pots, and tie them out; they will only require sufficient tying to make the plants shapely, and to prevent breakage. After Christmas the temperature may be increased 5° day and night. Young plants, to flower well, must always be kept warmer than established specimens. Let us now suppose the month of March to have arrived, and, with the scorching sun and drying winds usually prevalent at that season, great attention will be requisite as to watering. To obviate such an incessant use of the watering pot at this season of the year, an excellent plan is to cover the stages with an old mat, placing on that about an inch or two of Cocoa-nut fibre, and setting the pots on it; the benefit derived from this practice is very great. Bloom buds will now be rapidly making their appearance, and, by the middle of April the plants should be a blaze of fine flowers, useful for all kinds of decoration. When in flower they will, of course, require shade. I feel sure that all who follow out these rules, simple though they be, will be gratified with the result. Henry Bailey.

Royal Nursery, Feltham.

Rhodoleia Championi.—We have a very fine large plant of this shrub, 15 feet high; but it has never yet flowered. I do not recollect seeing much said about it in garden periodicals lately, or of its having been exhibited. One of your English papers recently gave an illustration of it as it grows in the Botanic Gardens at Hong Kong, where it is said to be "the handsomest of Hong Kong trees." Our plant has not had any particular culture; on the contrary, it stands among the Camellias, and receives precisely the same treatment as they do. Possibly it is kept too warm in winter. I should be glad to know what treatment it requires to make it flower. Perhaps Mr. Baines can tell me. Being unwilling to give much space to a plant not disposed to bloom, it has not been potted for three years.—C. M. Hovey, *Boston, Mass.*

Indian Crocuses (Pleiones).—These, like my Calanthes, promise to bloom earlier this season than usual. Those who do not know them should at once make themselves acquainted with them. They are lovely little Orchids from the north of India, peculiar in habit but bearing very beautiful flowers. The bulbs of some of them are dark green, covered with little warts, and bear lance-shaped leaves of a light green colour, and nearly a foot in length during summer. They flower after the leaves fall off in the autumn. The blossoms of P. lagenaria are of a pale rose colour, the lip being white, blotched with clear sulphur-yellow and crimson. P. Wallichii and P. maculata are also very handsome, and well worth growing. Most people fail to grow these and many other beautiful cool Orchids simply because they allow them to get too hot in summer. —J. M.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Fine Specimen of Ixora coccinea.—We have an Ixora coccinea here 5 feet in height and 4 feet in diameter, which produced last June, about sixty trusses of brilliant scarlet blossoms, and it is now bearing fifty-three trusses. —W. R. Woodman, *Lucombe Nurseries, Exeter.*

Selaginella a Useful Plant for Surfacing Pots.—In Mr. Methven's nursery, Inverleith Row, large quantities of Selaginella Kraussiana, or Lycopodium denticulatum, as it is sometimes erroneously called in gardens, is grown in shallow flat pans placed under the stages and in other out-of-the-way places. This is used for covering the surface of the bare soil in pots containing dinner-table Palms and other decorative plants, and is removed from the pans to the pot tops a day or two before the plants are used.—B., *Edinburgh.*

Autumn-flowering Heaths.—One of the best of these is Erica Irbyana, a well-known and fine kind; and E. Bowienna produces its drooping white wax-like tubular flowers so plentifully at this season that I wonder it is not more generally grown in collections than it is. Another fine autumnal Heath is E. Marnockiana, a splendid specimen of which was exhibited at the Edinburgh show last week, and was awarded the Veitchian Medal and Memorial Prize as the best flowering plant in the show. The flowers are produced in terminal clusters, and are of a deep red colour tipped with white and slightly glutinous.—B.

FLOWER GARDENING AT THE CRYSTAL PALACE.

Summer flower gardening is, on the whole, well carried out here, although the soil is scarcely fitted for Alternantheras and other tender plants, while the Rosary and terrace gardens are fully exposed, so that delicate or large-leaved subjects, which require shade and shelter, have to be avoided as much as possible; still a few very attractive beds of mixed sub-tropical plants find a place in the more sheltered portions of the grounds. The centre of attraction here is the ribbon or panel border which surrounds the Rosary and the carpet beds, which alternate with the beds of Hybrid Perpetual and China Roses on the slopes. These Rose beds are even now gay with flowers, and are bordered with Stocks, Chinese Pinks, Mignonette, and other showy and fragrant annuals. The old Monthly and crimson China Roses also do well here, and have flowered profusely during the past few months, but we think considerable improvement might be made in the beds here if the H. P. Roses were either grown on their own roots or worked near the roots of the stock, so as to allow of their being pegged down; indeed, this is the best plan in exposed positions generally, and there are few plants better fitted for bedding purposes than some of the strong free-flowering Hybrid Perpetual and China Roses when kept dwarf by this treatment. When shall we have a combination of Roses, Lilies, and rich purple and blue Clematis in our public gardens? To these well-known and perfectly hardy flowering plants, we might add, Tritoma Uvaria, Pampas Grass, Hollyhocks, Yuccas, more especially the free-flowering kinds, and other hardy perennials. The large circular beds of Hollyhocks are now very effective on the green slopes, between the terrace garden and the Rosary, and are judiciously edged with dark-leaved foliage plants, and some pretty beds of dwarf Conifers, and other evergreen shrubs, near the entrance corrider, deserve attention. These beds are planted with Retinosporas, Aucubas, Golden Yews, Hollies, Box, and variegated Euonymus, and show us how attractive we might make larger and more permanent shrubbery borders of this description, in conjunction with variegated silvery Negundos, golden Catalpas, silvery-leaved Poplars and Willows, purple Beech, and hundreds of other hardy trees and shrubs, all of which are beautiful in themselves, but ten times more effective when judiciously massed and contrasted with each other.

Carpet Bedding.

Here, as elsewhere, we find the place of honour occupied by the display of dwarf foliage plants, arranged in carpet-like devices. Some of these beds on the terrace are very novel in point of design, each bed being divided into three panels, and in the central and largest one the form of a butterfly, with out-spread wings, is represented in carmine, purple, white, blue, and gold, on a glaucous green carpet of the dense-growing Sedum glaucum. In one of the prettiest and most perfect of these representations the body and antennæ of the insect are planted with Alternanthera versicolor, the blue eye-like spots on the wings being represented by circular masses of dwarf blue Lobelia, surrounded by a ring of white Cerastium. The ground colour of the wings themselves is represented by a carpet of the bright carmine Alternanthera amœna spectabilis, the other markings being made with strips and patches of Cerastium, blue Lobelia, orange-coloured Alternanthera, and other dwarf-growing plants. The greyish-green carpet of Sedum glaucum is surrounded by a broad line of golden Mesembryanthemum. The end panels are planted in the centre with an oblong carbuncle-tinted block of Coleus surrounded by a belt of Pyrethrum Golden Feather on a square of blue Lobelia, which is again surrounded by a narrow line of crimson Alternanthera, a line or edging of glaucous Echeveria running round each panel. Another of these butterfly designs was made on a golden carpet of Pyrethrum edged with a line of green Tagetes, the butterfly in this case being formed of crimson Alternanthera with characteristic markings of golden Pyrethrum, blue Lobelia, silvery Cerastium, and other plants. In the centre of the end panels of this bed is a design like a treble looped eight (8) formed of Alternanthera with a circular patch of blue Lobelia in the centre of each loop. This shows well on a soft creamy-yellow carpet of the golden-leaved Fig Marigold surrounded by a line or beading of crimson Alternanthera. This arrangement, like the last, is finished off neatly with an edging of the glaucous-leaved Echeveria. Several beds of blue Violas and Pelargoniums, and some beds of mixed Mesembryanthemums and other succulents, are well worth notice on the terraces here. The past season has been a very bad one for flowering succulents, such as Portulacas and Fig Marigolds, than which few plants are more attractive in dry hot sunny weather, planted either on beds or on dry banks on a carpet of dwarf Sedums, Saxifrages, Antennaria tomentosa, and other carpeting plants. The circular carpet beds alternating with the oblong Rose beds near the Rose temple are well worth notice, and one or two of the best are here represented. The materials used are white Cerastium, green Tagetes, crimson and carmine Alternantheras, Coleuses and blue Lobelias. Pyrethrum Golden Feather is used in some of the beds; in others its place is supplied by the paler-coloured golden-variegated Mesembryanthemum, one of the best edging plants yet introduced. Being arranged on the slopes, these beds are seen to excellent advantage from the walks below, and the effect might be considerably heightened another season by planting the border which surrounds the Rose temple with plants as distinct as possible from those used in the circular beds below. In some cases this year Pyrethrum Golden Feather is used largely in the carpet beds, as well as in the borders behind, and then monotony in colour is the result, when both beds and border are seen together from below. This season, Lobelias have overgrown themselves, and the Alternantheras have been kept back by the cold rains; yet, altogether, the authorities here deserve credit for the neat and dressed appearance of these carpet beds, and certainly the "butterfly" beds are by far the most artistic in point of design of any we have seen this season, not even excepting the excellent examples in Victoria Park and Hyde Park, bordering on Park Lane. A very effective carpet bed here is planted with Coleus, surrounded by a ring of variegated or silvery-edged Pelargonium, then a ring of Tagetes signata pumila, closely clipped, the rest of the bed being carpeted with the dark purple Alternanthera magnifica, on which are alternate triangular panels of blue Lobelia and the soft Golden Fig Marigold. This bed is edged with glaucous Echeveria. Another charming bed is composed of a cross of crimson Coleus, and panels of blue Lobelia, on a dense carpet of Golden Mesembryanthemum, edged with Alternanthera and glaucous Echeveria.

Bedding and Sub-tropical Plants.

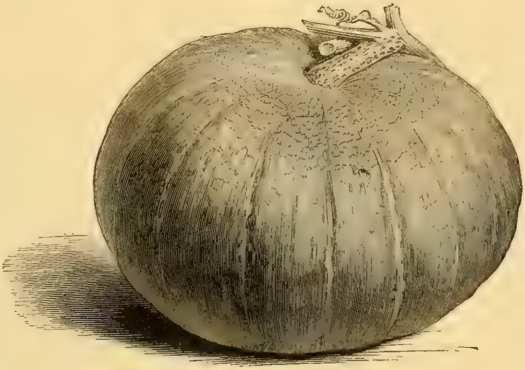
Pelargoniums, Calceolarias, and Verbenas, have thriven well here, and form bright masses of colour at the angles, and along the margins of the walks which skirt the base of the Rose mound. One of the most beautiful of all the round beds here is planted with the deep purplish-blue free-flowering Viola Admiration, on a carpet of Lady Plymouth Geranium; a combination well worth repetition another year. A very brilliant bed is formed of three eccentric circles of the rich purplish-crimson Iresine Lindeni, on a dense carpet of Gazania splendens variegata. This last-named plant forms a soft bluish-green or glaucous ground tint, on which its brilliant orange flowers contrast most effectively with the rich foliage of the Iresine. A bed of a soft blue Viola and scarlet-flowered Pelargonium mixed is very effective, edged with the best of golden-leaved zonals—Crystal Palace Gem. Blocks of Calceolarias have done well here this season, and are edged with purple Iresine, crimson Coleus, or dark-leaved Perilla. Scarlet-flowered zonals, and a close edging of Gnaphalium tomentosum, is well worth notice, as is also a bed of Centaurea compacta and crimson Coleus, arranged in concentric circles. A free-flowering pink zonal, like Amaranthe, edged with the golden-leaved and scarlet-flowered Crystal Palace Gem, is very attractive, as also is a bed formed entirely of Purple King Verbena and the silvery-leaved Cineraria maritima compacta, in concentric rings; while a bed of a white-edged scarlet-flowered Pelargonium, and circles of a deep rosy-flowered Verbena, deserve especial notice, although a golden-variegated zonal would have been more attractive as a contrast. Several arrow-head-shaped beds, occupying angles on the turf, formed by diverging walks, struck us as being very softly-coloured and pretty. One of the best of these consists of a block of white-edged bright scarlet-flowered Pelargoniums and the old purple Verbena venosa mixed, the whole edged with a golden-margined Pelargonium, and another of Madame Vaucher. A white-flowered zonal is effectively bordered by lines of Ageratum mexicanum var. and the gold-leaved Crystal Palace Gem. Two large and very beautiful beds, at the foot of the terrace steps, leading from the palace to the lower grounds, are planted in the centre with a dark scarlet-flowered Pelargoniums; then comes a line of Christine, followed by a white variegated variety, and one of the most perfect belts of blue Viola we have seen this season; the whole margined with a belt of the soft golden Pyrethrum. A group of sub-tropical beds here, backed by evergreen shrubs and deciduous trees, deserves notice, two semi-circular beds of tall dark-leaved Cannas being very effectively bordered with lines of bright rose-flowered Mesembryanthemums, and a dense row of the glaucous-leaved Echeveria, which forms a most graceful object, being allowed to flower. A large central clump of dark-foliaged Castor-oil plants are effectively bordered with the large-leaved Solanum glutenosum, then a bright golden line of Abutilon variegatum, followed by a line of the distinct-looking, spiny Herring-bone Thistle, which, in its turn, is succeeded by a row of dark-leaved Mesembryanthemum, and a flowering edging of the rosette-like glaucous Echeveria. Several smaller beds, planted with Solanums, Blue Gum (Eucalyptus), Hemp, and Wigandias, and edged with Echeveria, added considerably to the excellent effect of this arrangement. A mixed star-shaped bed of dark-leaved Cannas and variegated Maize, was surrounded by clumps of a nearly black-leaved Coleus, among which isolated plants of the silvery Cotyledon pulverulenta show to excellent advantage. This is neatly edged by lines of the golden-margined Coprosma Baueriana variegata and the purple-tipped Sedum calcareum, and is one of the prettiest of all the sub-tropical beds here. Some of the large Rhododendron beds are rendered very attractive by scarlet Gladioli, which are just now flowering freely, and show well against the dark glossy foliage of its evergreens. F. W. B.

FLOWER GARDENING AT KEW.

As regards extent, the bedding arrangements here will not bear comparison with those of the other London gardens; they are, nevertheless, very attractive, and are, for the most part, confined to the broad flower-walk between No. 3 museum and the pond, and to the parterres surrounding the large Palm-house. There is nothing strikingly original here this season, and the best arrangements are the succulent beds and the blocks planted with Mangle's Variegated Pelargonium and Verbena mixed together, by which a novel and peculiarly pleasing effect is produced. The introduction of dark-leaved Cannas, and silvery Solanums at intervals, down the double line of beds alongside the flower walk, helps to relieve the monotony which is nearly always apparent in long lines of beds of similar patterns, even when the material and mode of planting are varied as much as possible. The large central bed near the pond is scarcely so effective as usual, the best feature in it being its carpet-like border. The ornamental vases opposite the Palm-house are planted with Ivy-leaved and scarlet and pink-flowered Pelargoniums; while, in some, flowering Mesembryanthemums are introduced with excellent results. A pair of round carpet-beds between the Palm-house and the old Victoria Lily-house are planted with Alternanthera magnifica, edged with belts of golden Pyrethrum and glaucous Echeveria; on the central carpet of crimson Alternanthera are four circles of the soft, blue-leaved creeping Kleinia, surrounding clumps of the carmine-leaved Alternanthera amœna. The centre of each bed is occupied by a good specimen of the White-spined Herring-bone Thistle, and four plants of the purple-leaved Tradescantia discolor serve as centre plants for the smaller circles. Between these last-named beds are two oblong ones planted with the golden tricolor Pelargonium Mrs. Pollock, crimson Coleus, and Iresine Lindeni, edged with a line of Viola cornuta. The best pair of beds here, however, are two oblong-shaped ones opposite the Palm-house, planted in the centre with a block of Linden's Iresine, surrounded by lines of a golden-leaved zonal resembling Creed's Seedling; then a belt of blue Lobelia, followed by lines of the soft golden Mesembryanthemum, the whole surrounded by a Box edging, as, indeed, are all the other beds in this arrangement. The Great Reed, naturalised on the margins of the ornamental water here, is seen from this point with excellent effect, and a few weeks hence the silvery plumes of the Pampas will bear it company, some tufts of the latter having developed themselves remarkably on the spongy margins of this pond during the past year or two. The Box and gravel design in front of the Palm-house is planted with scarlet and pink-flowered and variegated-leaved Pelargoniums, blue Lobelia, purple Verbenas, and yellow Calceolarias, together with variegated Fig Marigold, Alyssum, Coleus, Iresine, and other foliage plants. Calceolarias here, as elsewhere, this season, are a failure, if we except Prince of Orange. The large circular raised bed at the upper end of the long flower-walk is planted with scarlet and pink-flowered Pelargoniums, Iresine Lindeni, and the glaucous-leaved Melianthus major, plants of Sonchus pinnatifidus and Grevillea robusta being dotted here and there at intervals with good effect; then come two semi-circular curves, pointing outwards, of the silvery Centaurea compacta, separated by a line of blue Lobelia. Outside these curves come segments of Coleus, with golden-leaved Zonals in the centre, and these materials produce a very good effect. This bed is bordered with a broad panelled bed of carpet plants, such as red and carmine-leaved Alternantheras, divided by curved lines of the glaucous-leaved Echeveria, which cross at the corners, thus forming oblong triangular and diamond-shaped panels, both sides of this border being neatly and effectively edged with the soft golden Mesembryanthemum. Two oblong beds, planted with Mangle's variegated Pelargonium and the old Verbena venosa mixed here, produce a very marked effect, being edged with crimson Coleus and the dwarf-growing golden-leaved Pelargonium Robert Fish. Two round beds of the purple-leaved Canna Maréchal Vaillant, surrounded by belts of Pelargonium, Perilla, and Verbena Purple King, are also very distinct, and are neatly edged with the creamy-white-leaved variety of Anderson's Speedwell. Next came two oblong beds of the free-blooming pink-flowered zonal Maid of Kent, edged with lines of Centaurea ragusina compacta and Iresine Herbstii. This last-named plant does tolerably well here, and is distinct in colour; but it is far surpassed by the more elegant I. Lindeni. One of the most brilliant of all the scarlet zonals in use here is St. George, which is now flowering well, and is appropriately margined with lines of the silvery Centaurea compacta and Herbst's purple or claret-leaved Iresine. Then came two round beds of the golden variegated Abutilon, banded with the dark-leaved Chinese Perilla, and margined with lines of Viola cornuta and Gnaphalium lanatum. This last-named plant forms a good silvery edging; but a still better use for it is to drape rock-work in the conservatory or for hanging-baskets in the greenhouse. A pair of beds, planted with the bright rosy zonal Amy Hogg, are now very effective, edged with lines of Centaurea and Iresine; and two long beds of Calceolaria Prince of Orange, edged with crimson Coleus and Pelargonium Robert Fish, are rich and good. This Calceolaria is of a rich and decided shade of colour, and, wherever it does well, is most effective massed with Iresines and Coleus. Some beds of mixed succulents, such as glaucous and metallic Echeverias, Cotyledon pulverulenta, Aloe fruticosa, Gasterias, Sempervivums, and Pachyphytons, on a carpet of Sedum glaucum, or S. corsicum, Echeverias, and the blue-leaved Kleinia repens, look well. These beds are very distinct, and well worth notice, as they may be repeated with excellent effect on portions of the lawn where bright colours are not desired. Two long beds of Coleus, among which plants of the golden-leaved Abutilon are dotted, are edged with lines of golden-leaved Pelargonium, Creed's Seedling, Alternanthera magnifica, and Echeveria glauca. Some of the small circular beds are planted with masses of the silvery-leaved Solanum argenteum, edged with belts of purple Iresine, dwarf blue-flowered Ageratum, edged with a white-leaved Pelargonium. Next we come upon two oblong beds, the oblong block in the centre being planted with oblique parallel lines of Verbena Purple King and Pelargonium Daybreak, edged with lines of Creed's Seedling, Alternanthera magnifica, and the glaucous-leaved Echeveria. This oblique or diagonal system of planting deserves a word of praise, as two entirely different effects are obtained by adopting it; if viewed obliquely the lines are seen distinct or separate, as in ribbon planting, but, viewed from the front, the effect is similar to that of a mixed bed. The scarlet zonal Excellent has done well here, edged with lines of purple Iresine, golden Fig, Marigold, and common Houseleek. Lady Constance Grosvenor, a rich vivid scarlet zonal, and Claude Lorraine (cerise), have also done well, and are most effective, edged with lines, as in the last-named arrangement. Viola cornuta has failed this season nearly everywhere, and the same may be said of Amarantus melancholicus ruber, a plant which is very rich and effective in hot bright seasons. F. W. B.

THE KING OF THE PUMPKINS.

Last week took place that ceremony of the Paris autumn markets, the "crowning of the Pumpkin." The custom is not believed to be very ancient, though it dates, say the learned, from the year One. All market gardeners, who own a fruit of extraordinary size, send in their claim. A decision is made after long comparison and much study. The very biggest and fairest of all Pumpkins competing is picked out, is adorned with a paper crown, and is raised upon a beautiful gilt board hung with ribbons, and adorned with little flags. Four giants, chosen among the porters of the Halles, and suitably attired, carry it all round the market. Every stall-keeper is bound to rise and do obeisance. Flowers and vegetables are cast before the king. Two noteworthy market-women present an address, and there is abundance of innocent foolery. It is the great day of the Halles, and every one does their best to make the crowning a success. Then the king is very solemnly sacrificed, and his members are put up to auction. It is the proper thing amongst his subjects to have a fragment of his Majesty in the soup that night.



The Large Gourd of the Paris Market.

Giant Knotweed.—Polygonum cuspidatum is a large and very rampant-growing perennial, with panicles of white flowers, and is well fitted for the pleasure ground. It grows about 7 feet high. P. sachalinense is, however, I think, better and more distinct, as far as I can judge of it, as I have not flowered it yet. They are apt to be cut down by spring frosts, when (as in my case) in a low damp situation, but spring up vigorously again. P. Brunonis, a dwarf species, about 1 foot high, with handsome rose-coloured spikes of flowers, is worthy of a place in the border.—Oxon.

Leigh Hunt's Prison Garden.—The following extract from the "Autobiography" of Leigh Hunt may interest some of your readers. The author was imprisoned in Horsemonger Gaol for debt; but, being in extremely delicate health, he was removed to an infirmary. After describing his apartment, he adds:—"But I possessed another surprise, which was a garden. There was a little yard outside the room railed off from another belonging to the neighbouring ward. This yard I shut in with green palings, bordered it with a thick bed of earth from a nursery, and even contrived to have a Grass plot. The earth I filled with flowers and young trees. As to my flowers, they were allowed to be perfect; and Thomas Moore, who came to see me with Lord Byron, told me he had never seen Heartsease like mine. Here I wrote and read in fine weather, sometimes under an awning. In autumn, my trellises were hung with Scarlet Runners, which added to the flowery investment."—B.

The Solomon's Seal.—Polygonatum multiflorum (our old friend Solomon's Seal) is never seen to such advantage as in a shrubbery, leaning forward in front of low bushes. The double form is not so good as the single one. The rose-coloured variety I have not tried; perhaps some of your readers who have done so will tell me whether it is really "rose" or not.—O.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Planting Fruit Trees.—In accordance with the advice recently given as regards early autumn planting, preparation should at once be made for the removal of young Apples, Pears, Plums, or Cherries, that are too close, and that need more room; also for the planting of such small trees as may be required. This applies equally to those intended for placing at intervals in the kitchen garden, dwarfs, or cordons for the margins of walks; or where operations have to be carried further, as in the formation of orchards; in all cases the work is much better done as soon as the leaves have began to fall than later. The above fruits, taken collectively, like a good holding soil more inclined to be heavy than light, but it must be sufficiently dry, either naturally, or made so by draining. The ground should always be well dug, not merely just in the place occupied by the trees, but the whole quarter in which they are to be planted; as if, in the case of soil of a retentive character, only that in which the roots are to be placed is stirred, the wet through the winter will lodge in the loosened soil, and be anything but beneficial to the roots. In localities in which the sub-soil is naturally damp, it is best to plant wholly, or nearly so, on the surface, merely removing about 6 inches of the soil, or in some cases none at all, then drive down a stout stake and secure the tree to it, spreading the roots out evenly on the surface, and covering with soil thrown up from a short distance in the shape of a slight gently sloping ridge. Plums are even more averse than Apples or Pears to any over-damp situation; in confirmation of this we have only to notice how well those generally do that are planted in a hedge-row, surrounding an orchard or similar situation, where there is often a deep ditch adjoining, which secures a dry bottom. Where all the requisite conditions are present, calculated to favour the growth of fruits, such precautions as planting out of the ordinary way, in the manner here described, are not necessary. Those who have not had much experience in this matter often make the mistake of planting too deeply; 8 or 10 inches of soil over the roots is covering enough, treading it firmly. Always give sufficient room, making a calculation of what space each tree will require when it shall have arrived at something like full growth, except where they are planted twice as close as they are intended to remain, in which case, when the time comes for removing every other tree, those that are to stay permanently should consist only of the best free-bearing kinds that have been proved to succeed well in the immediate neighbourhood. With amateurs, the mistake is almost always committed of having too many varieties, more especially of Apples and Pear. This, in some measure may be accounted for by the immense number of sorts included in the lists of those who have them for sale. No matter how good may be the quality of an individual kind of fruit, if it is naturally a shy bearer, or unsuited to the neighbourhood in which it is planted, it becomes useless. Take, for instance, the Cornish Gillyflower, an Apple unsurpassed in quality, but generally so shy a bearer that in nine situations out of ten, a good-sized tree will not produce a dozen fruits a year. The following is a short select list of good sterling varieties, not only good in quality, but abundant bearers; the free-fruiting qualities of which have been thoroughly tested in all parts of England.

Apples.—*Lord Suffield.*—A large-sized early kitchen sort, so excellent in quality that it is fast superseding most other early culinary kinds; it is an immense bearer, and succeeds in almost any situation where Apple culture is possible. Those who plant it, too, are not subject to the infliction of waiting long for a crop, for it will bear in a very small state, young trees of it generally being laden with fruit the second year after planting. *Alfriston.*—A very large and free-bearing kitchen Apple that comes in for use about the time the preceding kind is failing, *i.e.*, in November, and it will keep good until late in the spring. *Dumelow's Seedling* or *Wellington.*—Another excellent cooking Apple, an abundant bearer, and one which is in season from December all through the winter. *Blenheim Pippin.*—Large in size, an excellent bearer, and alike good in quality either for dessert or culinary purposes. The tree grows to a large size, and the fruit is in season from November to February. *Cellini.*—A good-sized very handsome Apple, excellent in quality for cooking and very fair for dessert. It is a heavy cropper, and its fruit is in season in October and November. *New Hawthornden.*—A free-bearing kitchen variety of good quality; in season all through the autumn. The tree is not nearly so liable to canker as the Old Hawthornden. *Irish Peach.*—A medium-sized dessert Apple, a free bearer, good in quality, and one of the best early kinds grown. Ripe in August. *Ribston Pippin.*—With the quality of this Apple most of us are familiar; it is an excellent bearer, but the trees are subject to canker in some parts of the country where the rainfall is light. In use from October to January. *Margil.*—Almost equal to the Ribston in quality, an abundant bearer, and a good grower. In season from December to March. *Cox's Orange Pippin.*—A dessert kind, of moderate size, an excellent bearer. Ripe in November, and will keep all through January. *Golden Winter Pearmain* or *King of the Pippins.*—A good dessert variety, of medium size; in season late in autumn and the early part of winter. A good grower and an abundant bearer. *Court Pendu Plat.*—Excellent in quality for dessert, an abundant bearer, handsome, and medium in size. It has the valuable property of blooming very late, when spring frosts are generally over. Fit for use from December to April.

Pears.—*Jargonelle.*—A good early variety, so well known as to require no description. It ripens in August, is excellent in quality, and an abundant bearer on either wall or standard. *Williams's Bon Chrétien.*—A kind ripe in August and September; excellent in quality, and a good bearer, succeeding well in most situations, either on walls or standards. *Marie Louise.*—Unsurpassed in quality; grows to a handsome size; a good bearer, succeeding as a standard, even in the northern counties, but deserving of a wall in the most select collections. Ripe in October and November. *Louise Bonne of Jersey.*—A medium-sized variety, of splendid quality; an immense bearer. It is a good grower, either as a wall tree or as a standard. Ripe in October and November. *Doyenné du Comice.*—A fine sized fruit, of exquisite flavour; fit for use in October and November. *Beurré Superfin.*—Ripe in October and November, and a free-bearing sort of good quality. *Beurré Bachelier.*—Large in size, and good in quality; hardy, and a very free bearer. Ripe in November and December. *Winter Nélis.*—A small sized kind, of excellent quality, and an abundant bearer, but requires a wall in the northern counties. Ripe at the close of the year. *Joséphine de Malines.*—Medium in size, but a really good Pear; fit for use from February to the end of March. *Beurré Diel.*—Large and handsome; an abundant bearer, either as a wall tree or as a standard; fit for use in November. *Beurré Rance.*—Fruit, moderate in size, and of excellent quality, unsurpassed as a late variety. In season from March to May. *Catillac.*—The best of all cooking Pears; large in size, a great bearer, and one which keeps until April.

Plums.—*Denniston's Superb.*—An excellent green dessert Plum, hardy, and a great bearer; medium in size; ripe in August. *Greengage.*—A splendid dessert August Plum, and a good bearer; in the northern counties it does best on a wall. *Kirke's.*—An excellent good-sized, dark purple dessert sort; ripe in September. *Jefferson.*—A large, rich-flavoured, yellow, dessert variety, of fine quality; ripe in September. *Purple Gage.*—A medium-sized, pale purple, good dessert Plum, and one which hangs well on the trees; ripe in September. *Coe's Golden Drop.*—A large yellow kind, which should be grown on a wall, where, if allowed to hang, it becomes of excellent quality; fit for use in September. *Ickworth's Impératrice.*—A large dessert, richly flavoured, late purple variety; ripe in October. *Prince of Wales.*—An excellent free-bearing kind, suitable for kitchen use. *Pond's Seedling.*—A very large Plum, a good bearer, and one which well deserves general cultivation. *Victoria.*—A free-bearing, good culinary sort. *Shropshire Damson.*—An excellent free-cropping kind for preserving, and one which is very hardy. *Winesour.*—Considerably larger than the Damson, lighter in colour, and a great bearer.

Cherries.—*May Duke.*—One of the best grown, good in quality, and an abundant bearer; ripe in the beginning of July. *Bigarreau Napoléon.*—A large heart-shaped Cherry, pale yellow, mottled with red, a heavy cropper; in season about the end of July. *Bigarreau d'Hildesheim.*—A very excellent Cherry that comes in after the above-named sorts, towards the end of August. *Morello.*—A free-bearing, dark red, culinary sort, with the merits of which we are all familiar.

The fruits here mentioned are selected for their individual excellence, combined with a reasonably hardy constitution and free-bearing disposition. They may be relied on to give satisfaction in any locality where fruit of their respective kinds can be grown successfully.

Housing Hard-wooded Plants.—Space should now be at once prepared for housing any hard-wooded plants that may have been set out for a time in the open air, such, for instance, as Heaths, Epacrises, Acacias, Cytisus, and others of a similar character; for although many of these will bear a few degrees of frost without absolute destruction, yet if subjected to such a test, the flower-buds are frequently injured, and the leaves also lose colour. They should be housed whenever any indication of a low temperature is apparent, and placed for the winter in as light a situation as can be found for them.

Earthing-up Celery.—The general crop of Celery for winter use should now be examined; all suckers should be removed, as well as a few of the smallest outside leaves, and then the foliage should be tied together loosely in the manner recommended in the case of the earliest crop; after that a thorough soaking with manure-water should be given, and then about 6 inches of soil from the ridges should be drawn to the plants, an operation which not only keeps the leaves from being broken down by wind, but tends to promote growth, and, where too much soil is not applied, it has no bad effects in preventing rain from reaching the roots. The Celery maggot is now, in some places, more than usually active; it may easily be detected by the brown patches which it produces on the leaves. The only remedy is crushing it between the thumb and fingers. The Cabbage caterpillar is also now attacking late Cauliflowers; they get into their hearts as soon as they begin to form, and for these no dressing can be applied that would not spoil the heads, consequently hand-picking must be resorted to, otherwise the larvæ will continue their work of destruction until the occurrence of sharp frost.

The Flower Garden and Pleasure Ground.

Every effort should be used to prolong the attractive appearance which these departments still present. Keep everything in the best possible order. Lawns and Grass walks will still require to be occasionally mowed, although, on account of dry weather and the advanced season, this will be less frequently necessary than has hitherto been the case. Leaves are, however, beginning to fall, and the broom must be kept in constant use. The leaves of many trees are now beginning to assume their autumnal tints, some of which are very beautiful and tend, at the present season, to give a peculiar charm to park scenery. Some of the Oaks, such as Quercus rubra and tinctoria, will present for some time to come, the most brilliant and varied hues; as will also some of the Chestnuts, as well as various other trees. These changes of colour are worthy of attention, inasmuch as notes made of them now might be found useful in the arrangement of trees for effect. Where the moving of large trees or shrubs is intended, possibly the best time to do so is between this and the middle of November, not later, as the soil will then have become cold and unfavourable to the development of fresh roots. When, therefore, we have been favoured with a copious fall of rain, such work should be at once proceeded with; as should also the planting of trees and shrubs of less size, whenever such work has to be done.—P. Grieve, *Culford, Bury St. Edmunds.*

Hardy Flowers.

One of the neatest and prettiest of the Silene family is amongst the autumn (or late summer) flowering perennials, and is one of the best of them, viz., Silene Schafta, from the Caucasus. It grows quite freely in the front row of the mixed border, and requires no more care than being planted in ordinary sandy loam. The flowers, which are of good size and of a purple-rose colour, are freely produced in long cymes. The plant forms a useful succession to the other Silenes, which have mostly gone out of bloom when S. Schafta is in full flower. I only know two species of perennials on which the flower opens first from the top instead of, as usual, from the lowest buds; these are—Centaurea babylonica and the varieties (some, at all events) of the Liatris. The Centaurea is a very fine and stately silvery-leaved plant, not at all so extensively grown as it ought to be. It grows to 8 or 9 feet high (or even more), and produces yellow blossoms close to the stem; but the flower is not the most desirable part of the plant, as it is principally dependant for its beauty on the leaves. At the back of a wide mixed border, it would form a fine ornament; but its best place is isolated in the turf of the pleasure ground, or in small groups of three or four plants in the bays of shrubberies. To those anxious to grow this Centaurea, I would say either raise it from seed (the best way) or procure small plants of it. It is perfectly hardy, and will grow in any soil, perhaps best in that which is moderately stiff; but, as it forms an enormously thick tap-root, it is impatient of removal after it is once established. I have found it make little or no progress, when first planted out, for perhaps a year; but when it has once got hold of the ground it will grow away vigorously. The varieties of Liatris are showy and handsome plants, of which, perhaps, three are worthy of a place in the mixed border—L. elegans and L. spicata, the former in sandy, and the latter in moist, loam, and a stouter species, with denser spikes of flowers—L. pycrostachya, a kind which grows to nearly 5 feet high, whereas the others do not reach more than 3 or, perhaps, 4 feet. The bloom, in all cases, consists of purple flowers in spikes. There is another variety called, I believe, L. macrostachya, said to be larger and finer than either of the preceding; but I have not grown it, so cannot speak of its merits. One of your correspondents some time ago spoke of the superior qualities of Bocconia japonica compared with those of B. cordata, stating that the former was a much finer plant, and that it grew with him to 7 feet in height. Would any one kindly throw any light on the subject, as I have not B. japonica, but have several clumps of B. cordata? The tallest plant of the latter grows with me to over 10 feet in height, and makes a very fine specimen; but, of course, I should be glad to procure any varieties of still greater merit. Its leaves, which are glaucous, have lobed margins, and are oval-heart-shaped; its flowers are cream-coloured, or slightly rosy, and are produced in large panicles. This plant, though a native of China, is perfectly hardy in sandy loam, where it forms a most stately ornament; but it does badly in cold stiff soils. It is easily increased by careful division, and I have now a good stock of specimens (besides those given away to friends) from my own original plant, procured about four years ago. If placed in a sunny position, and somewhat sheltered, it will well repay attention. There is a Rudbeckia now in bloom in my garden (R. laciniata), but it is almost too tall and rampant for its position. It grows with me to 8 feet in height. The leaves are deeply cut, and the flowers are of a pale yellow, with a greenish disk. It is at present in a border of very rich soil, but it must shortly be transferred to the wild garden. Amongst other yellow-rayed plants in flower at this time of the year are some species of Coreopsis, the Buphthalmums, Heleniums, and Telekia speciosissima (cordifolia?). The varieties of Coreopsis do not vary much from one another; the best are perhaps C. lanceolata and C. tenuifolia. I have had C. grandiflora, but I find it identical with C. lanceolata, though I believe they are really distinct plants (or ought to be so). Mine grows to about 3½ feet high, and has showy flowers 3 inches in diameter, with small reddish-purple markings round the disk, at the base of the rays. C. tenuifolia, with narrow leaves and golden flowers, does not grow more than 2 feet in height. I have also a plant sent to me as C. longipes, but it does not seem to me distinct enough for a place where the others are already grown. The Heleniums are also showy and handsome plants. H. autumnale grows 6 feet high or more; it has long elongated rays, and is quite deserving of a place at the back row of a border. H. californicum does not grow quite so tall, but seems otherwise identical. H. atropurpureum, which ought to be dark purple, is the same (speaking only horticulturally) as H. autumnale, and is described in the catalogues as having yellow flowers. Surely, however, with such a name, there must be great confusion amongst the species, as I cannot imagine that a yellow flower should bear the Latin name of a purple one, notwithstanding the very evident fact of the strangest liberties being constantly taken by horticulturists with that long-suffering language. Telekia speciosissima (T. cordifolia is, I imagine, the same plant, and gives a better impression of its appearance) is a fine species for the wild garden; it is vigorous, has large heart-shaped leaves, and is very suitable for association with fine-leaved and late summer or autumn-blooming perennials.—Oxon.

Centaurea babylonica.

Indoor Fruit Department.

Vines.—Pot Vines intended for starting into growth by the end of October or beginning of November should now be thoroughly ripe and have their leaves all cast; any which may still remain should be taken off by hand, and the Vines may then be removed into a cool open shed or similar place, where they must remain in a complete state of rest until they are placed in their forcing quarters. Remove later fruiting canes from under glass to the open air, as the wood becomes brown towards the point. Where space is available, they may be set along the bottom of a south wall, with the rods nailed to the wall, so as to prevent the wind from blowing them about. Do not give them much water, but, at the same time, never let the soil at any time become parched. There need be no hurry to ripen small canes for planting next spring; keep them moderately supplied with water for some weeks yet, and let the wood harden slowly and surely. Small canes, which will be cut over and grown into fruiting rods next year, must be carefully attended to, and, when grown in odd shaded corners, as they often are, no time should be lost in exposing them to light, air, and sun. Vines permanently planted out late this season will yet be in a growing state. As they should not be started into growth very early next year, the ripening of their wood need not be hastened. The points may be cut off long leading rods back to within 6 feet from where they started.

Pines.—It is always an advantage in Pine culture to have plenty of good soil at hand for potting; a stock of it should always be in store, and the present is a suitable time to lay in a supply. A somewhat open, but not sandy, fibrous loam is generally obtainable from the surface of old pastures; sometimes it may be taken off to the depth of 6 and 8 inches; in other instances the fibre does not extend below 2 inches. It should be cut in pieces a foot square, and the whole should be built up in a heap; where it cannot be accommodated under a shed make it up outside, after the manner in which a Potato-pit is formed, so that it may throw off heavy rains. The Grass need not be cut before lifting the soil, as most of it will decay before the spring, and what remains may be used as manure.—J. Muir.

Irrigation in Picardy.—One of the most interesting agricultural regions in France is that of which Amiens is the centre, because it not only exhibits great variety of soil, but also methods of cultivation. Yet in the time of Arthur Young, that traveller could find no agricultural merit in the district. As Picardy was the seat of so many wars, its backwardness is thus easily explained. At present it is a thriving seat of agriculture and manufacturing industry. To the native methods of cultivation, are joined those of Flanders and England; a large sea, or estuary board, and excellent canal and river accommodation, contribute much to the prosperity of the rural population; sixty per cent. of the land is devoted to the growth of Wheat and industrial plants. Much bog land is tilled according to a system of root crops and kitchen gardening; having dried and levelled the soil, it is divided into parallelogram beds, 10 or 12 feet wide, each separated by a ditch or canal 6 feet in width, and connected with the river. This canal serves to water the beds, and to receive all vegetable refuse, for the latter is never directly buried in the soil, being, as just stated, allowed to rot to form liquid manure. A three-course rotation is pursued, where salads, Radishes, Carrots, Onions, and Leeks are alternated with Potatoes, Peas, Cabbages, and Turnips; some Cabbages weigh from 30 to 50 lbs.; Beets from 20 to 30; Turnips 12 to 18, and the Tournery Radish from 12 to 24 lbs. A visit to the market will confirm these weights.

THE FRUIT GARDEN.

CORDONS AND CYCLAMENS.

The following device has met with such acceptance here that it is possible it may be of use to others. I have edged a great part of my kitchen garden with cordon Pear and Apple trees, under which I have planted Cyclamens. It is a kind of *miscuit utile dulci*, for which a great deal can be said. Not an inch of ground is wasted, and there is something to look at through a great part of the year. Moreover, the cordon trees just give that measure of shade in which some of the Cyclamens seem to delight, and their leaves obligingly fall off when the varieties of Cyclamen Coum have nothing to fear in the winter from the sun, but rather like his influence on them. The borders have been regularly made for the Cyclamens, and the roots of the little Pear trees are kept from invading their territories by a few slates, and by careful pruning. At this present time I have both Cyclamen europæum and C. hederæfolium in full blossom, and the trees above them are laden with fruit. I have no trees so full of fruit as these little cordons are, nor have I seen any about here that can be for a moment compared with them. The Cyclamens, for the most part, keep so close to the ground that they do not in the least obstruct a free passage of air. I would just add that, of all the Pear trees with which I am acquainted Beurré Clairgeau is among the very best. In the Isle of Wight it is a most constant and prolific bearer, and the fruit is of such a glorious bright crimson colour, as well as of very good flavour, that it is very much liked. Cyclamen persicum lived here in the open ground quite well last winter, but it has not yet blossomed. I hope it will do so next spring. The tubers came from the Lebanon district. Henry Ewbank.

St. John's Vicarage, Ryde.

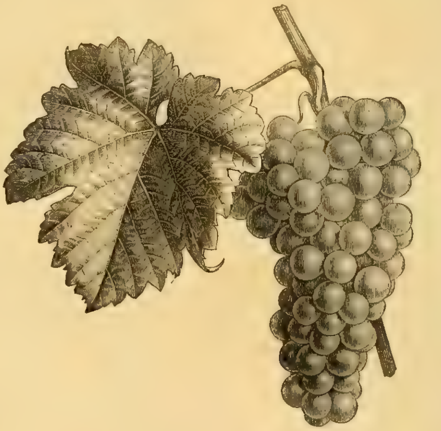
SIR HARRY STRAWBERRY.

Some of your correspondents seem to think that this Strawberry has been lost, but, judging by Mr. Pettigrew's description of it (see p. 164), I have no doubt that he has the true variety. A few years after this Strawberry was sent out there were numerous complaints about the plants having been mixed, and some stated that they could see no difference between Sir Harry and some other well-known sorts, which were named at the time. Sir Harry originated with an amateur at Birmingham, and was sent out by the raiser without going into the hands of the trade, except on pretty much the same terms as those offered to private growers; fruit of it was shown at a number of local shows, and no doubt large numbers of plants of it were sold in small lots in provincial districts; when true, it proved to be a capital Strawberry, and gave general satisfaction; but, somehow or other, not more than 20 per cent. of the plants sold were those of Sir Harry, the bulk being Hooper's Seedling, a strong-growing variety, the only recommendation of which was its size and firmness, which made it a good kind for travelling and for preserving whole. Hooper's Seedling makes a large quantity of runners early in the season, and Sir Harry very few; probably, therefore, the first runners taken off would be all Hooper's, and those of the few genuine plants that happened to exist among them would either be wholly overlooked or lost. In some cases Keen's Seedling was mixed with Hooper's Seedling, the foliage of the two being much alike. I complained to the raiser of Sir Harry about the mixture, and he sent other plants to replace such as were spurious; but, in consequence of such mixtures, the variety soon fell into disrepute, and I am not surprised that people believe that it is altogether lost. I am glad, however, to find that such is not the case. J. Taplin.

South Amboy, New Jersey.

CHASSELAS DE FONTAINEBLEAU GRAPES.

Every autumn, about this time, quantities of this delicious little Grape may be seen in the Paris markets, packed in small boxes or circular baskets. This variety is not unfrequently grown as an early Grape in this country, under the name of the Royal Muscadine; but it is not half so delicious when forced in our hothouses as when ripened under warm sunshine on the white-washed walls of Thomery and Fontainebleau or St. Cloud. There are several varieties of Chasselas grown in French gardens, all of which are of excellent flavour; but this is the best of them, and the one most generally grown, as a dessert Grape, for the French markets. The Vine is moderately vigorous in growth, and is easily recognised, even when not in fruit, by its peculiarly blunt-lobed rounded leaves. The bunches are generally small, rarely exceeding a pound in weight even when grown indoors in this country, and grown out-of-doors in French gardens the clusters are smaller still. The berries are round and of a clear greenish-yellow colour, acquiring a pink or amber tint, on the sunny side, when fully ripe. Being of a peculiarly sweet juicy flavour, and producing a crackling sensation when eaten, it seems singular that this delicious little Grape does not more frequently find its way to our London markets, as it can be imported quite as cheaply as the Spanish Chasselas and Sweetwaters, and it is greatly superior to them in flavour. It bears packing and carriage well, and the only drawback is that it must be sold as soon as it is ripe, as it does not keep longer than a week after being cut, and this is, doubtless, the reason why our London fruiterers do not care to import it. As brought to the French markets, the bunches are wedged tightly into oblong deal or Poplar wood boxes, without any packing, each box holding from 3 to 5 lbs.; and, in fruitful seasons, these boxes may, as a rule, be bought at prices varying from 2s. to 3s. each. F. W. B.



The Chasselas de Fontainebleau.

FIGS OUT OF DOORS AND IN ORCHARD-HOUSES.

Want of knowledge of the mode of bearing and habit of growth of the Fig has often ruined the prospects of a crop under orchard-house or open wall culture. Forced with artificial heat, which enables us to extend its season of growth from January till the end of October, the shoots of the Fig may be pinched at every third or fourth joint three or four times during the season, and each pinching will ensure a crop of fruit; but the same practice applied to plants growing in cool houses or out of doors would be simply ruinous, as far as the fruit was concerned. Under the latter circumstances the first essential is a well drained and not too ample border, composed of good garden soil or loam, to which may be added plenty of lime rubbish, the whole made tolerably firm, in fact hard. The Fig is one of the most vigorous-rooting fruit trees we possess, and in this climate, if the roots are not more than usually kept in check, fruit cannot be expected. At the same time, we should prefer giving the trees a narrow and shallow border, to be filled with roots that will be allowed to remain undisturbed, to frequent root-pruning. The fruit of the Fig is exceedingly apt to drop if the trees experience any check, such as root-pruning is sure to produce, however carefully done; and the safest plan is not to reduce the number of the roots, but to place them in such circumstances that they are completely under control as regards feeding. The permanent fertility of a Fig tree so confined is perfectly surprising, and it is this fact upon which the pot-culture of the Fig is founded. We have seen plants, from which not more than one good crop was expected in the season, that had not been shifted for ten years, yet they bore well, being well fed. We turned one such plant out by breaking the pot, to which the roots adhered so that no tapping would disengage them, and found that the soil had almost disappeared, the pot being filled completely with a mass of roots, that had warped themselves round and round it till they threatened to rend it asunder. Yet the application of top-dressings, water, and occasional doses of liquid manure was all that was necessary to sustain the plants in health and enable them to produce good crops of fruit annually. Such facts as these should be noted by those who attempt the cultivation of the Fig outdoors in this country. In orchard-houses the trees should be kept in roomy tubs or large pots, which should be plunged; but care should be taken that they do not root through the bottom into the border, which they are likely to do if they can find a hole or crack anywhere. The rapidity with which they will develop when once they escape in this way is marvellous, and will generally be indicated by barren shoots of corresponding vigour in the tree. Borders for wall trees 12 or 18 feet in height need not exceed 6 or 8 feet in width, nor be deeper than 18 inches. The bottom of the border should be of concrete or paved, or, at least, rammed so hard as to be impenetrable to roots; this is practicable if the sub-soil is somewhat strong and adhesive. Of course, the sub-soil should be dry, and drained if necessary; but for a border of such moderate dimensions a regular bottom of drainage, as in Vine borders, is not necessary. A single row of 4-inch tiles, along the front of the border, will ensure the removal of all stagnant water readily enough. To prevent the roots from extending beyond the limits of the border, a 5-inch brick wall, of the depth of the border, should be carried along the front. This will effectually bar their progress, and is a better and more certain plan than chopping the roots off annually with the spade.

The Lady Apple (Pomme d'Api).

Pruning and Training.

Outdoors, or in orchard-houses, only one crop of Figs is produced in the season, and the fruit is formed on the wood of the previous year near the points of the shoots; consequently, pruning and training must be conducted with a view to the equal distribution of the annual shoots, which must on no account be stopped, otherwise the embryo buds which form in the axils of the leaves, and attain the size of small Peas by autumn, will be forced to swell prematurely; and, if they do survive the winter, it will only be to drop off the summer following. With standard bushes, therefore, the best plan is to allow the shoots to grow without stopping till the end of the season, only thinning them out in good time to admit the light to those which are left, that they may be well ripened. With wall or trellis-trained trees the same treatment applies, only that space may be saved by tying such shoots as are retained to the naked limbs about the middle and bottom of the trees. There are several methods of training Figs; but it is not of much consequence whether the horizontal or fan system is adopted, so long as a good supply of young bearing wood is laid in annually. We have seen wide and lofty fan-trained trees in which not a foot of space was left void of bearing shoots. The foliage of the Fig is so ample that there is much danger of crowding when the trees are trained against walls. The shoots should therefore be thinned out freely where they appear to be too thick, and they must not be tied in too closely during the growing season, but are allowed to project from the wall so that the points of the shoots may be exposed as much as possible to the light, as on the full development of the leaves near the top of the shoots depend the quantity and quality of the fruit. We have seen that shy-bearing variety, the Castle Kennedy Fig, bear extraordinary quantities of fine fruit when so treated. If summer pruning and training have been conducted properly, little or no pruning will be required in winter. It will only be necessary to tie the shoots in finally in as easy positions as practicable, giving the points liberty, that the young Figs may not be rubbed or squeezed when they begin to swell the following season. When tying-in is finished the trees should be protected from frost by hanging mats, Fern, or Spruce branches over them. It will also be better if the border is protected from excessive wet during the winter. The shoots will not suffer if permanently matted up from November till March; but, though the Fig does not begin to grow till May, or later, in this country, the protecting material should be reduced or removed daily, as soon as the sun's influence begins to be felt in spring. The border, also, especially when it gets well filled with roots, should be mulched, and, during the summer, water must be given in abundance when required. The Fig is a prodigious drinker, and the fruit is sure to drop at the critical stage if the trees are allowed to suffer from drought at the root. Other culture during the bearing season consists in keeping the shoots regularly and thinly distributed, and exposing the fruit freely to the sun and air. To prolong the Fig season the custom is, as we before hinted, to force the trees and induce second and third crops by the systematic pinching of the shoots. But it is a question worth solving whether an equally long supply of fruit of much better quality could not be had by adopting orchard-house treatment, the extension system of training, and by employing varieties that ripen their fruit in succession. For my own part I consider that the habit of the Fig tree and its mode of bearing point to the standard form of training as best adapted to it, and that it is undoubtedly the best way to grow it in orchard-houses, where, by adhering to the simple plan of thinning, but never shortening the shoots, heavy crops of fruit might be calculated upon to a certainty every year with such a sure bearer as the Fig tree.

J. S. W.

THE LADY APPLE.

This beautiful little dessert Apple, the Pomme d'Api of the French, may often be seen in the windows of the fruiterers' shops in Covent Garden, where its handsome form and brilliant colours never fail to excite admiration. It is by no means a new Apple; on the contrary, it was once said to have been known and appreciated in the time of Pliny. It is now thought to have been, originally, a French Apple, obtained from a wild variety found in the forest of Apis, in Bretagne. In Normandy it was well known in 1690, and was then called Gros Apis and Long-bois. The fruit of this Apple, which should be gathered as late as possible, should be thinned where it is too thick, and, above all, should be as much exposed to the sun as possible, so as to give it colour. So well does it adhere to the tree that it will brave, without falling, the strongest winds.

This Apple should be eaten with its skin on, this having so agreeable a perfume that we can hardly afford to dispense with it. It is largely grown in the United States, and always commands a higher price than any other fancy Apple in the market. In this country it would, doubtless, succeed well under Orchard-house culture, on the Paradise stock, or in the open-air. G.

Bush Apples on the True Paradise Stock.—A plantation of bush Apples on the true Paradise stock, in Messrs. Veitch's fruit nursery at Fulham, has for weeks past been an object of much interest. The little trees, three years grafted, are heavily laden with fine fruit. The collection includes Cox's Orange Pippin and some of our best sorts, which may not be obtained through French sources, worked on the desired stock. All who have gardens on clay or heavy loams, and wish to gather fine fruit in a very short time, would do well to try a dozen or two of the best dessert Apples on the true Paradise stock, which numerous trials have now proved to be a dwarfing stock of inestimable value for the Apple. We should like to see such kinds as the Ribston worked extensively on this stock.

Early Strawberries.—"Purdy's Fruit Recorder" describes the mode by which Strawberries may be had one or two weeks earlier than in common open ground. We give the description briefly as follows:—Select ground sloping to the south about 1 foot in 10. Set early varieties late in summer in the bed about half-a-foot apart each way. Set up planks edgewise, securing them by stakes, nearly 2 feet high on the north and west (protection from winds), and half-a-foot on the south and east. Bank up these with earth. On the approach of winter, cover the plants with evergreen brush, or common brush covered with coarse straw. The winter protection, aspect, and shelter of the planks, hasten the ripening several days.

Fruit-rooms.—A fruit-house should be similar to an ice-house in its walls and construction, the intention of which is to exclude the heat in autumn as well as the cold in winter. Fruit which has been kept cool during the last half of autumn will keep several weeks longer than if housed, as soon as gathered, in a warm and damp cellar. If built above ground, which would be best, the walls should always be double and filled with sawdust, tan, or other non-conductor of heat. A space of 6 or 8 inches would answer. An earth floor would probably furnish heat enough to the room with good non-conducting walls. Three shelves, one above another, may occupy the space between the floor and the roof, and the passages around them admit of ventilation and access. For ordinary use Apples may be placed on these shelves without cover, and the layer being only a few inches thick, any decayed specimens are easily seen and removed. If the shelves are occupied with Pears they will ripen more perfectly (especially summer and autumn sorts) if a woollen blanket is first spread on the shelf, the fruit deposited, and then covered with another blanket. Or, if the shelves are made into boxes, with lids for excluding light, they will answer well. Where fewer Pears are grown a row of drawers at the side will answer a good purpose. The windows of the fruit-house should be either double or have double panes. After fruit has been gathered and placed in it air should be admitted only on the north side to keep it as cool as practicable; it should be opened in cool days or nights, and be kept closed during warm days. A thermometer should be hung in it, and in winter the temperature kept nearly down to freezing, if that be possible. For large fruit-houses the Pears, Apples, and Grapes should be in separate rooms, in order that the odour of the one may not injure the flavour of the others. It often happens that a carriage-house or other out-house may be spared for a few weeks in autumn for fruit where a cellar is used in winter for storing it. The same care must be employed in either case to keep it cool both in autumn and winter.—"Cultivator."

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Clapp's Favourite.—This is a large, showy, and very good Pear. The tree is also a good grower, but the disposition to decay at the core, which it obtained from one of its parents, will prevent its ever being as profitable for market as the William Pear. It ripens in September.—V.

Tomatoes *v.* **Wasps.**—It has been my practice for many years to grow Tomatoes at the foot of the wall where Peaches and Nectarines grew over them, and I have never found that the odour of the Tomato plant kept away wasps; but have had occasion, notwithstanding the fact that I had a good crop of Tomatoes, to use bottles filled with treacle and water as traps for these insects. I may add that my experience in this matter extends over thirty years.—M.

Anomalous Grafting.—In the first volume of The Garden (see p. 683), a correspondent says he has a Cherry tree which fruits well worked on a Laurel; and in Baltet's "Art of Grafting" (p. 170), I am not a little surprised to read that the Garrya may be cleft grafted, or veneered on the Aucuba as a stock. If any of the readers of The Garden can give me any information on this point I shall be obliged. I may here remark that I have Pachyphytum bracteosum worked on Echeveria metallica, both of which are growing well.—Prop.

THE FLOWER GARDEN.

ROCK SPEEDWELLS.

(VERONICA.)

A large northern family, containing many beautiful Alpine flowers, and re-appearing in the cool temperate regions of the southern hemisphere as a race of beautiful shrubby and some dwarf species from New Zealand. A large number of the European kinds are vigorous herbaceous perennials, suitable for borders and the "wild garden." Among the dwarfer species the most truly Alpine, and among the best adapted for the rock-garden, are:—The Rock Speedwell (Veronica saxatilis), a brilliant blue miniature bush. A native of Alpine rocks in various parts of Europe, and also in a few places in the Highlands of Scotland, forming neat tufts 6 or 8 inches high. The flowers are a little more than half an inch across, and of a pretty blue, striped with violet, with a narrow but decided ring of crimson near the bottom of the cup, the base of which is pure white. Veronica prostrata.—A very dwarf species, forming spreading tufts, and bearing deep blue flowers. There are several varieties with rose-coloured and white blooms, appearing in early summer. A hardy and pretty plant, flowering so freely that, when in full perfection, the leaves are often quite obscured by the flowers. A native of France, central and southern Europe, occurring on stony hills and in dry grassy places, and, in cultivation, succeeding perfectly in sandy soil. It is an admirable plant for rock-work, its prostrate habit fitting it best for sloping positions or fissures on vertical faces of rocks. The Taurian Speedwell (Veronica taurica).—A very dwarf, wiry, and almost woody species, forming neat dark green tufts, under 3 inches high, with flowers of a fine Gentian-blue, abundantly produced. This is perhaps the neatest of all rock Veronicas for forming spreading tufts in level spots, or tufts drooping from fissures. These grow in ordinary well-drained garden soil, and flower in early summer. Suitable for association with the dwarfest Alpine plants and Alpine shrubs, being itself, indeed, a tiny compact prostrate shrub. V. Nummularia, of the Pyrenees, V. aphylla, V. rupestris, the neat little bushy V. fruticulosa, V. satureiæfolia, V. candida, with silvery-white leaves, and the New Zealand V. Buchanani are also worthy of a place on the rock-garden or its surroundings. V.

FINE-LEAVED OUT-DOOR PLANTS.

The striking results produced in the London parks—notably in Battersea and Hyde Parks—during the last few years by the introduction of plants remarkable for their handsome foliage and stately growth has not been without their effect upon the gardening of the country generally; and sub-tropical gardening is probably destined to become still more popular than it has been, especially as it admits of a less formal and more pleasing arrangement of the surface of the ground than has generally been considered desirable in connection with ordinary bedding plants. Mr. Ingram has shown at Belvoir, in his spring bedding arrangements, what happy effects can be produced by the skilful grouping of colours on green slopes and terraces without much regard to geometrical arrangement; and, although it may still be necessary in flower gardens, immediately under the windows of the mansion, to adopt the geometrical form, there seems to be no reason why the most intricate figures should be selected, simply because they happen to look well on paper. Many of the isolated flower gardens, indeed, in country establishments, would be improved by being rendered less formal, and by having a less lavish system of embellishment introduced, especially as respects groups of flowering plants. Of course, everyone cannot turn his flower beds into Palm groves; nor is it necessary or desirable to do so; but there are many fine plants easily raised from seed that, if used, would impart quite a new feature to our gardens. I have directed attention to this subject now because most of the plants I am thinking of, and a list of which I will give presently, may now be commonly met with in good condition, their effect studied, and a decision arrived at as to future requirements. Cannas of various kinds are especially valuable; but to have them in perfection they should be covered a foot thick with leaves or short litter in autumn, after the frost has cut them down, and they should be allowed to remain out of doors all winter. There is no comparison between beds so treated and others subjected to the drying system of lifting them and storing them away in pots or boxes. There is, however, one thing to be noted in connection therewith—every two or three years, if thick planting is adopted, after growth has commenced in spring, the plants should be lifted carefully by a couple of men with steel forks, the soil in the beds should be renewed, if it is necessary for them to occupy the same position, and a fewer number of plants should be allowed to remain. If left undisturbed for many years the growth becomes too much crowded, and the foliage and flowers get weakly and poor. Amongst other plants that may be mentioned as being within the means of every one who indulges in the bedding-out system are Chilian Beet, Acacia lophantha, Ferdinanda eminens, Ferrula glauca, Giant Hemp (Cannabis gigantea), variegated Maize, Nicotiana wigandioides, Castor-oil plants of various kinds, Wigandia caracasana, Chamæpeuce Casabonæ, C. diacantha, and many others, but those I have named are easily raised from seeds in heat in spring. I find that I have omitted all mention of Solanums, some of which are strikingly handsome, especially Warscewiczoides, with its large, spiny, deep green leaves. Of course, those who have sheltered nooks and corners may plant out Palms and other valuable plants from their conservatories and stoves, but the plants I have named, if not coddled or drawn up weakly while young, will stand out with safety during summer in the most exposed situations. If desired, before the cold frosty nights set in, a few of the best of such plants as I have named may be lifted, potted in good-sized pots, and, if helped on with a little heat, will be found desirable subjects for the winter decoration of either the conservatory or the mansion.

Ramsey Abbey. E. Hobday.

THE CALCEOLARIA DISEASE.

Though Mr. Westland's experience (see. p. 219) proves that this disease will occur under the best of management, I am still far from thinking that it prevails so extensively or so severely as to warrant our doing away with the Calceolaria altogether. It is natural that those who cannot get it to grow under any treatment should condemn it; but, hitherto, I have found nothing to match it as a yellow, or as a sure grower; and, if Mr. Westland will call here, he will see beds of two or three varieties that I think he will pronounce faultless as regards luxuriance, bloom, and general good health, and they are not better this season that they have been for the last eleven years, during which period the stock has not been changed. We had the disease only once—in the wet season of 1872, and then it chiefly affected the plants of part of one particular row on a border, and in that instance I attributed its appearance to carelessness in planting; for, with the exception of a very few planted elsewhere, it confined itself to that particular spot, beginning and ending where a certain workman began and finished his planting in a not very satisfactory manner, as I had occasion to tell him at the time. Arguing, therefore, from my own experience, like Mr. Westland, I conclude that the immunity which our Calceolarias experience is due either to treatment or to the soil, both of which have already been described in The Garden. Mr. Westland is surprised that the disease should be worst in a wet season, like the present; but, if I remember rightly, 1872, which was one of the wettest seasons on record, was also a very bad Calceolaria year. What reasons exist for supposing, however, that a wet season suits the Calceolaria best? None, so far as I am aware. On the contrary, so long as the plants have a cool and moist bottom to root in, a bright sky and a dry atmosphere seem to suit them. Indeed, these are the conditions under which the Calceolaria is found growing naturally, if my sources of informations are correct, which state that the plant is generally found on the Chilian slopes, where the chief supply of moisture which the ground receives comes from the melted snow which runs down from the mountains.

Wortley Hall. J. Simpson.

CULTURE OF HARDY MOSSES.

It has very often been a source of regret to me that gardeners do not, as a rule, evince a greater interest in the culture of Mosses than they generally do, for it is admitted by all that a rockery is a dull artificial-looking affair until the materials with which it is constructed are clothed with the rich verdure of Mosses, which act the double part of keeping the roots of the Ferns moist and cool during the dry parching heat of summer, and of rendering it attractive during the winter, when the major part of the Ferns have become a mere heap of brown rubbish. Although the Mosses occupy rather a low position in the vegetable kingdom, they play not a very unimportant part in the economy of Nature. It is to them that we are indebted, in a large measure, for the supply of fuel which has so materially aided the development of the numerous resources which have made England so rich and powerful a nation. The peat-bogs of Ireland, and I might also include a good portion of England, are principally formed with the Mosses, and it is astonishing with what rapidity a hollow of from 20 to 30 feet is filled up with the successive layers of decay and growth which unceasingly go on, and in the formation of which the various species of Mosses have a large share during the early stage of their existence. If we were to penetrate into one of these bogs, and obtain a sectional view, we should find the stems of the Moss to be in a state of gradual decay close to the surface, and if we trace these down we find the process still going on to a depth of 30 or 40 feet, when we come to a compact substance highly charged with bituminous matter evincing clearly a close relationship with coal, and in this formation we have one of the most important uses of Mosses in the economy of Nature. Independently, however, of their usefulness, Mosses, to my mind, possess sufficient beauty to repay the cultivator for the time and trouble which he may expend upon them, although their culture can never be made so popular or attain the magnitude of that enjoyed by Ferns. The collection of Mosses for study and preservation is to the amateur an interesting and delightful occupation, and particularly so when he becomes a successful cultivator as well. Many can be procured for the trouble of gathering them from hedgerow banks or old damp walls. A really fine collection can be grown in a space of 4 square yards, and the shade from surrounding objects would be just what the Mosses really require, thus rendering any useful space unnecessary. There are hundreds of instances, even in the laid-out pleasure grounds, where a Mossery would be a source of interest to all concerned. Many persons are under the impression that it is only out-of-doors that Mosses may be cultivated, but this is not so, for a beautiful ornament for the drawing-room or hall may be made by a neatly constructed miniature rockery, covered with several species of Bryum, Polytrichum, Tortula, and several others of a distinct character, placed under a glass shade. This would be of great value for furnishing objects for the microscope, and at the same time act as an incentive to the study of this interesting part of the vegetable kingdom. Those who wish to form a Mossery should observe the following conditions. The rockery should be constructed with stone and supplied with water at the summit, so as to cause a trickling down from terrace to terrace, until at the base these small rivulets formed a pool. On this rockery, amongst the stones the Mosses should be planted, making special provision for those requiring a particular kind of soil. By this mode of arrangement some hundreds of specimens might be brought under the eye at once, and in a manner closely resembling the position of their natural habitat. Fill in the pockets and ledges with soft limestone, rotten bricks, peat, sand, and other materials, upon which the Mosses will be found to thrive admirably. The cultivator should endeavour to procure a shady position for the erection of the Mossery, as the sun dries the plants up quickly, and if they do get dried up they lose that peculiarly bright green appearance which makes them so really beautiful. In collecting specimens for cultivation, care should be taken not to tear them rudely from pieces of rock or from other materials; they should be taken with a thin slice of whatever they may be found growing on still adhering to their roots; on this they will grow freely and spread in all directions, otherwise the roots get injured, the specimens suffering in consequence, and death being frequently the result. As I have before pointed out, means should be adopted, if possible, for affording a continuous and plentiful supply of water from the top, causing it to trickle down the sides, which will give the rockery a natural appearance, and will also be most conducive to the health and freshness of the collection growing upon it, as the various species of Mosses require a liberal supply of moisture at all seasons to keep them in full health, in proof of which assertion it is only necessary to point out the vigorous way in which they all grow naturally during the generally humid months of November and December. Mosses should have a good sprinkling overhead three times a day during the summer, to secure their being kept in good condition; but, at other times, twice will be sufficient, unless the weather is particularly warm. There will be sufficient atmospheric moisture during the winter for them, except in the event of the weather being unexceptionally dry, which is very rarely the case in our humid climate. In the event, however, of such being the case, a good sprinkling overhead will be of immense benefit to them; and, indeed, there need be little fear of their at any time receiving too much. When the Mossery is being constructed, care should be taken that each species is placed in a position bearing a close affinity to that in which it is found in its natural state; for instance, those found growing on stone or brickwork should be secured to those substances, and those which are found in damp pools and ordinary soils should have a similar situation allotted to them. A careful consideration of the conditions under which each species is found in its natural state will also enable the inexperienced cultivator to form an idea of the treatment which it will require to bring it to a state of perfection, and he will find every particle of information picked up in this way of undoubted service to him at some time or other. There is scarcely any subject of more importance to the microscopist than the fructification of Mosses, and it would be hard for him to find more beautiful objects than the different varieties afford. During the winter and early portion of the spring most of them put forth slender hair-like threads, and these are surmounted with what are termed capsules, in which are contained the seeds, and in this fact will be found a striking difference between the fructification of Mosses and true flowering plants. In the latter class it is the germ, or lowest part, that swells into a seed-vessel, whereas in the case of the Moss it is on the summit that a receptacle is found for the seeds or spores. This is covered with an extinguisher-like cap, which, when the seeds become ripe, is either lifted up or split down the entire length, thus allowing them to become scattered by the winds. On the germination of the seeds a number of delicate confervoid threads are produced, out of which, in due time, the true Moss-like growth proceeds, and which, in the natural course, acquires fruitfulness. It seems almost incredible, yet it is true, that many of those patches of greenness on stone walls and gravel walks, which to the naked eye exhibit no distinctness of form, are actually Mosses in their first stages of development. If the nidus upon which they first appear proves suitable, their true character is soon apparent, but if it is not so they remain for some time in their confervoid form, and ultimately fade away. The distinctive features of the different species are easily discerned, as, for instance, the Bryums have strong roots, and the Hypnums small and delicate ones. Those of the species which are found on trees and rocks possess a mere flattened disk for their attachment, the plants deriving their nourishment from the atmosphere alone, while Bartramia arcuata produces such a profusion of what is generally admitted to be roots as to almost smother the leaves and stems. The species Hookeria lucens protrudes roots from every point of substance, and even from the edges and surfaces of the leaves, and many others emit roots from their points as they creep along. As a general rule, Mosses have true stems and leaves, but in some instances the leaf-stalks rise directly from the roots, yet, even in such cases, true leaves are produced, although there are no stems. These leaves are attached by their lower edges, and are always destitute of a foot-stalk; unlike the leaves of other plants, they never decay or fall off, but tenaciously cling to this root-stalk, and only disappear by a process of decay when the entire plant has been subjected to destructive influences. I must conclude my remarks on this subject by recommending all lovers of the vegetable kingdom, who are as yet unacquainted with this department of gardening, to at once commence the study and cultivation of Mosses, as in them they will find an amount of instruction and amusement which at first sight would seem almost incredible. C.

THE YELLOW NELUMBIUM.

This noble plant, which we have seen flowering freely in the open air round Paris, is also found to be hardy very far north in America, according to a correspondent of "Moore's Rural," who says of it—"The largest and one of the most desirable Nelumbiums is the Yellow Nelumbo (N. luteum) or, as it is called in the south, Water Chinquepin. Nelumbo is the Ceylonese name for the East Indian species, hence the Latin name of the genus. We have but one native species and it is not very common, although found sparingly in the Southern States and in a few localities in the Northern. It is found in Big Sodus Bay (Lake Ontario), in the Connecticut River near Lyme, Conn., and formerly, if not at present, it was growing in the Delaware below Philadelphia. In all these northern localities it is supposed to have been introduced by the Aborigines who valued the seeds as food. The large fleshy roots are also edible, but would scarcely be considered a delicacy by the side of our best cultivated roots. This magnificent plant might be readily introduced into every fresh water pond in the country and become quite an interesting feature of the same. Three years since I procured a few seeds through one of my correspondents, and upon their arrival, I threw them into a shallow pond from which I had taken out peat. Although the water in this pond is not more than 2 feet deep even in winter the plants have not suffered from cold. Some two dozen are growing finely, and nearly half the number have already bloomed, or are showing flower buds. The flowers are 6 to 8 inches in diameter, of a clear pale lemon-yellow, and possessing a delicate fragrance. In my opinion, they far surpass in beauty and fragrance the great "golden-banded" Japan Lily, of which so much has been written during the past few years. Besides this, they require no hoeing, staking, or other care, and are not like to become "too familiar," as everybody will not have ponds in which to grow them. The leaves of the Nelumbo are very large, flat and round, floating on the surface of the water, but the flower stems shoot up 2 to 3 feet above, bearing one large blossom on the apex. The seed vessels are top-shaped, 4 to 5 inches broad, and 1½ inches thick; each seed is of the size and form of a small Acorn, resting in a separate compartment, the walls of which shrink away at maturity, allowing the seeds to move about within the receptacle like the contents of a child's rattlebox. One of these pods or seed-vessels which I have kept for many years as a botanical specimen contains twenty-eight of the Acorn-like nuts.

Yellow Rock Nasturtium (Tropæolum polyphyllum).—Permit me to direct attention to this plant, which is seldom seen in perfection in English gardens. This is a good time to plant it, and a sunny situation on a wall suits it best. Its shoots grow several feet in length, and during many weeks in May and June, it makes quite a show with its multitudes of brilliant golden flowers, the beauty of which is greatly enhanced by its singular looking glaucous foliage. Any garden soil that is well drained will suit it, but it takes a year to get well established.—Max Leichtlin, *Baden Baden.*

Iberis jocunda.—This is distinct from any other; it grows about 2½ inches high. The leaves are oblanceolate, about three-quarters of an inch long by one-eighth of an inch broad, somewhat glaucous, much attenuated at the base, and with a minute point at the apex. The flowers are in small clusters, of a pleasing flesh-colour, and prettily veined with rose in early summer. This does not as yet appear to possess the rude vigour of our common evergreen Iberises, but it is none the less valuable as a rock-plant for being unlike them, and is fitted for association with a dwarfer and more select set of subjects. It should be planted on warm and sunny parts of the rock-garden, in well-drained sandy loam.—M.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Hardy Cacti.—The following are said to be hardy in Ghent, and should therefore prove so in this country:—Opuntia bicolor, O. Rafinesquiana, Echinocactus viridiflorus, and Echinocereus phœniceus.

Linum corymbiferum.—This is superior to any of the other hardy yellow-flowered sorts in cultivation. It commences to bloom near the end of summer, and does not cease till the winter's frost sets in. The blossoms are each nearly an inch across, supported on very long slender stalks, and produced in large and graceful corymbs. Usually, the plant is about 9 inches high. It is a native of Mount Atlas.—S.

Gaston's Lithospermum (L. Gastoni).—A rare and beautiful species from the Pyrenees, with erect herbaceous stems about a foot high, which, from May to August, bear terminal clusters of large bright sky-blue flowers about twice the size of those of L. prostratum (commonly sold under the erroneous name of L. fruticosum). Grows freely on rock-work or in any open border in rich well-drained loam.—M.

A Tall-growing Herbaceous Plant.—Eupatorium altissimum is the tallest herbaceous plant with which I am acquainted. I have a clump of it in my garden about 10 feet high. It bears large loose panicles of reddish-coloured flowers, but, owing to the great height of the plant, they are not very attractive. It is its stateliness of growth to which I would direct attention. Masses of it near water would have a fine effect, and even in the sub-tropical and wild gardens it would be found useful.—Thos. Williams.

Tritoma Uvaria as an Exhibition Plant.—"B.'s" note (p. 220) respecting this fine ornamental plant induces me to suggest to compilers of schedules for autumn shows the desirability of including a class for the twelve best spikes of its brilliant flowers. I have recently been struck with the length and beauty of the spikes produced by some plants of it in this locality, and it occurred to me that a few boxes of spikes, shown as other cut flowers are, would be very attractive. Moreover, greater attention would thus be paid to the cultivation of this fine hardy border plant, as in too many cases it is half-starved, and, in that condition, its beauties are but poorly developed, and its flowers soon fade.—A. D.

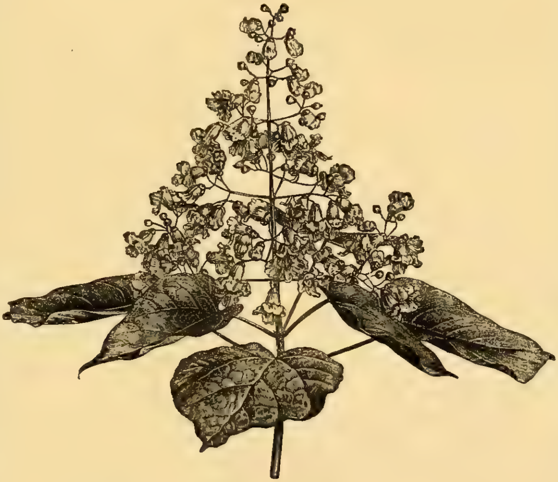
Physianthus albens.—Those of your readers who are in want of a quick-growing summer climber, for covering a wall or trellis, should procure this interesting Asclepiad. A small plant of it, little more than a foot high, with a few laterals, was turned out against an ordinary wall, with a warm exposure, about the end of May, and now covers 5 or 6 square yards of surface, every joint being furnished with a raceme of pure white flowers. A month hence, the shoots will be pruned back and the plant potted up for wintering in a warm greenhouse. I have yet to learn what degree of cold it will survive, but probably it would endure mild winters in the southern counties of England and Ireland. An easier plant to cultivate can hardly be imagined.—W. T., *Ipswich.*

TREES AND SHRUBS.

THE CATALPA.

This is one of the best of ornamental trees, so far as foliage is concerned, and one that not unfrequently produces conspicuous panicles of white lilac-dotted flowers after seasons sufficiently warm and dry to ripen its somewhat luxuriant and succulent growth. It is a native of China and Japan, and grows rapidly on warm soils in sheltered situations. It is one of the best of all trees for town gardens, growing well and flowering like a tree Gloxinia in the heart of London. The Japanese employ the wood in cabinet work, and in the manufacture of fancy articles, but it is only as an ornamental tree that it is of value in English gardens. In the Middle Temple Gardens there is a singular old specimen of it, which has evidently, at one time, been of large size, but it is now much reduced and timeworn. Another example of it, fully 30 feet in height, used to grow in the arboretum of the Royal Horticultural Society at Chiswick, where it bloomed well every year. It is rather a curious fact that the honey or nectar secreted by the flowers of this tree is poisonous. A golden-leaved variety of it, called aurea, has been used this season in Battersea Park as a sub-tropical plant, and when contrasted with the purple-flowered Clematis Jackmani in one of the beds near the rockery, it had a fine appearance. For bedding purposes it should be cut back every spring, so as to induce it to throw up vigorous shoots and produce large leaves.

V.



Catalpa syringæfolia.

TREE SURGERY.

About eighty or ninety years ago the director, or chief gardener of the Royal Gardens at Kensington (Forsyth), excited so much interest in his method of repairing injuries to the stems of trees, that the Government was induced to make him a grant of £3,000 on condition of his making public the secret of his "composition" or plaster, or rather paint. He received flattering testimonials from foreign countries, and the merits of his unguent and his specimen blocks from healed trees were much written about. That he somewhat hoodwinked his visitors there can be no doubt. Although he mentions in his works the use of wax or varnishes as a newly-introduced and effectual method of conveniently protecting graft-incisions, yet he claimed that all the healing of wounds in trees depended upon the popular virtues of his composition, which consisted of fresh cow dung, old lime, wood ashes, and sand, spread on, and then well dusted over till dry with a mixture of ashes of wood and of burnt bones. His directions for mixing and keeping this heal-all are not devoid of the odd fancies of the old astrological wiseacres, and some are too gross and coarse for modern print. But his practice of cutting and scooping out all decayed parts and protecting the spot as by an artificial bark until natural growth should extend lips of fresh growth over the whole, is worthy of all commendation and recommendation, and would save the lives of many valuable trees which are wounded whether by axes, or saws, or knives, or frozen sap, or by decay consequent on bleeding from May pruning, when the strong flow of sap prevents the wound from cicatrising. And in the spring time, when we all, wearied with the long reign of desolating winter, feel a passion for the pruning-knife and digging-fork of the garden, how pleasant and how profitable it is to dress the wounds on the vital stems of our trees. With a sharp knife and a pot of varnish we soon repair damages and arrest decay. Blocks from trees thus dressed many years before, and the wounds coated (during winter) with coal-tar, were shown at the Paris Exposition of 1867. The marks of large wounds were visible, but all were covered with new growth, and all perfectly sound; but, of course, the new wood does not "incorporate" with the old, as was claimed by Forsyth, although both are in solid contact.

THE MAGNOLIAS AND THEIR ALLIES.

The Magnolia family, whether limited, as in Lindley's "Vegetable Kingdom," to the two tribes, of which Illicium and Magnolia are the types, or extended to include a third tribe, comprising the genera Schizandra and Kadsura, and a fourth tribe of more recently discovered Japanese plants, is represented in few gardens by more than two or three species. Yet it embraces a considerable number of handsome hardy trees and shrubs, and nearly all of those which are not quite hardy will succeed in an ordinary greenhouse. The North American Tulip tree, and the gorgeous Magnolia grandiflora from the same country, are the only really familiar members of this family to the majority of amateurs. The Tulip tree appears to have been the first of the family cultivated in Europe, having been introduced in 1663; and the less hardy Magnolia followed about sixty years later. But I will not anticipate matters here by dwelling upon the history of the introduction and cultivation of the various species known. Although not a large family in comparison with many others, it has a wide range of distribution, and the widely distant habitats of its outlying members offer a most interesting and remarkable illustration of plant geography. As the genera are not numerous, and those not yet in cultivation deserve to be, a full list may be acceptable here, especially as two or three curious Japanese ones have not yet got into gardening books. The most noteworthy points in the distribution of the family are its total absence from Europe and Africa, and its presence in New Zealand and in Southern Australia. There are thirteen genera now referred here—namely, Euptelea, Japan, and mountains of east Bengal; Cercidiphyllum, Japan; Trochodendron, Japan; Drimys, South America, New Zealand, Australia, and Borneo; Illicium, North America and east Asia; Talauma, tropical Asia and America; Magnolia, North America, north India, China, and Japan; Manglietia, mountains of north India; Michelia, mountains of India, in temperate and sub-tropical regions; Liriodendron, North America, and perhaps central China; Kadsura, tropical and eastern Asia; and, finally, Lactoris, a very curious and anomalous shrub from the island of Juan Fernandez. The botanical affinities of the Magnoliaceæ are with the Clematis family (Ranunculaceæ), in the numerous carpels of the fruit, which character will distinguish its members from all other hardy trees and shrubs. They are erect shrubs or trees, with the exception of Schizandra and Kadsura, which are climbers; leaves, always alternate and undivided, and, in the true Magnolias, furnished with large sheathing stipules, which fall off as the leaves unfold; flowers, large and showy, without any distinction between calyx and corolla, or small, as in the climbing genera, or destitute of both calyx and corolla, as in the first tribe. To proceed to the consideration of the genera and species, as already mentioned, in its most comprehensive sense, the family includes four tribes.

Tribe I.—Trochodendreæ.

With the exception of one species of Euptelea, from east Bengal, the few known members of this tribe are natives of Japan, and probably all hardy, at least in the milder parts of the kingdom. The flowers are small and inconspicuous, being devoid of both sepals and petals. The genera are:

Euptelea.—Deciduous trees, having more the general appearance of some of the catkin-bearing families; indeed, Siebold and Zuccarini referred it to the Elm family, but the fruit was unknown to them. The Indian species (E. pleiosperma), figured in the "Linnean Society's Journal," vol. vii., very much resembles an Alder in foliage, but each flower contains a number of separate carpels, each carpel containing several seeds. It is, however, the Japanese species (E. polyandra) that interests us; and the chances of its early introduction are much greater. This has ovate or nearly orbicular, deeply and irregularly toothed leaves on long slender petioles, much resembling those of a Birch. Judging from dried specimens and figures, it is an ornamental tree. It grows near Yokohama, &c.

Cercidiphyllum.—Only one species is known, and this has leaves resembling those of the Judas trees (Cercis siliquastrum); hence the generic appellation. Doubtless hardy, as it grows high in the mountains of Nippon.

Trochodendron.—Of this genus, also, the only species known is figured in Siebold and Zuccarini's "Flora Japonica." It is an evergreen tree or shrub, with thick, coriaceous, simple leaves of variable shape, crenated in the upper half; and it is called T. aralioides, from the resemblance its foliage bears to some of the Aralias. Evidently as distinct and remarkable in its way as Salisburia.

Tribe II.—Wintereæ.

There are two genera belonging to this tribe, distinguished from the true Magnolias in having no stipules, and in the carpels of the fruit being arranged in one series. They are aromatic, evergreen small trees or shrubs, with coriaceous or leathery leaves, and small, yellow, pink, or white flowers, from ½ to 2 inches in diameter. Both genera are in cultivation.

Drimys.—As a genus this differs from the next chiefly in its fleshy carpels, which do not burst open to allow the seed to escape, but decay; it includes Tasmania. Three species have been in cultivation for some years, but they are still rare in gardens.

1. **D. Winteri** (Winter's Bark).—An ornamental shrub or small tree with oblong-lanceolate leaves, varying considerably in size from different localities, and small white flowers. All the forms from the extreme south of America to Peru are believed to be varieties of one species, but only the southern ones are hardy in the milder parts of the United Kingdom. It is found in Hermite Island, Cape Horn, from the sea up to 1,000 feet. The bark of this shrub was formerly in repute as a tonic medicine. It was first brought to Europe by Captain Winter in 1579, though living plants were not introduced before 1827. Greenhouse, or open air in mild localities.

2. **D. axillaris.**—A small tree, 15 to 30 feet high, with black bark, ovate-oblong leaves, and small inconspicuous flowers. The Pepper Tree of the New Zealand colonists; common throughout the islands. It is not remarkable as an ornamental tree; but amateurs forming collections in the south-west will find it hardy.

3. **D. aromatica** (syn. Tasmania aromatica, "Botanical Register," 1845, plate 43).—In Alpine situations this is a dwarf bush, but it forms a tree 30 feet high in the plains; and the leaves vary from 1 to 3 inches in length. The flowers are white, in terminal umbels. This species is about as hardy as the two preceding. It was introduced from Tasmania in 1822, and grows there from the sea coast up to an altitude of 4,000 feet. On the mainland of Australia it ascends to 5,000 feet.

Illicium.—There are two species of this genus not uncommon in cultivation. Both may be considered greenhouse shrubs, except in the west of England, and south-west of Ireland.

1. **I. anisatum** (syn. I. religiosum).—An ornamental shrub, 4 to 6 feet high, with terminal clusters of yellowish-white flowers, succeeded by the brown shining carpels containing very aromatic seeds. China and Japan. Introduced in 1790.

2. **I. floridanum.**—This has longer lanceolate leaves and red or purple flowers. Of faster growth, but less ornamental, than the preceding. It grows in swampy places in the southern States of North America, and was introduced in 1766.

There are several other species in various parts of Asia, &c., but none of them have very showy flowers.

Tribe III.—Magnoliaæ.

This tribe includes five genera, for the greater part beautiful trees or shrubs, with showy flowers. Leaves, evergreen or deciduous, often very large, and always with large stipules; flowers, white, yellow, pink, or purple; carpels, in several series, forming a cone-like or cylindrical fruit.

Talauma.—Tropical evergreen trees, closely allied to Magnolia in structure, differing mainly in the ripe carpels falling away from the axis. Several species have been introduced at different times from America and Asia, but being suitable for large houses only they may be passed over in this paper.

Magnolia.—From a horticultural point of view, this is the most important genus of the family. It comprises evergreen and deciduous trees and shrubs from a few feet to nearly 100 feet in height. The species are all natives of the temperate and sub-tropical regions of North America and Asia. The genus was named after Professor Magnol, a French botanist.

North American Species.

1. **M. grandiflora.**—An evergreen tree or shrub, growing nearly 100 feet high in its native country. In this country it requires the protection of a wall in the colder parts, whilst in the warmer parts (to the south and west of London), on a light well-drained soil, it forms a tree 20 to 30 feet or more in height. The oblong leaves vary in different varieties from 4 inches to a foot in length; they are coriaceous, and of a shining green above, and grey to a rich brown beneath. The large, almost pure white, flowers, resembling those of a Water Lily, are from 6 to 10 inches in diameter, and emit a deliciously fragrant perfume. It is propagated by layers or from seed; and the latter mode of propagation has given birth to a number of very distinct varieties, varying considerably in the size and colour of the under surface of the leaves and in the size of the flowers, and the season of their production, beginning in June or July, and the later ones continuing in bloom until the end of September, or even the middle of October. M. g. ferruginea is remarkable in having the under surface of the leaves clothed with a rich brown tomentum. M. g. exoniensis, from its free-flowering and good habit is one of the best; præcox is an early flowering variety; angustifolia has very distinct, narrow, lanceolate leaves; and in obovata the leaves are broadest at the top. There are several other varieties distinguished, but their names indicate their several characters thus—rotundifolia, crispa, elliptica, canaliculata, &c. M. g. gallissoniensis is reported to flower freely when quite young. It is stated to be of hybrid origin, but I have not been able to find any authentic record of its origin. M. grandiflora is found from North Carolina (South Carolina, according to Chapman) to Florida, and westward in the interior. It was introduced into this country about 150 years ago, and it is undoubtedly the most commonly cultivated, although the tenderest of all the North American species.

2. **M. glauca** (Laurel magnolia).—Deciduous or nearly evergreen in mild seasons; a shrub or small tree in the Southern States. It occurs in a wild state as far north as Massachusetts; and, be it remembered, in swampy places, differing in this respect from all the other species. As usually seen in this country, it has a naked, half-starved appearance, a consequence of the disregard of its natural habitat. The leaves vary in different varieties from broadly oval or oblong to narrow lanceolate, having the consistence of an evergreen, glaucous or nearly white on the under surface. The white, fragrant flowers, about 3 inches in diameter when expanded, are produced in July or August. Varieties, bearing the names latifolia, longifolia, Gordoniana, and Buchaniana are distinguished by nurserymen; the two latter have semi-double flowers. The species was introduced in 1688.

3. **M. acuminata** (Cucumber tree).—A hardy, deciduous, symmetrically branched tree of pyramidal outline, 60 to 80 feet or more high in its native country. Leaves, oblong-oval, suddenly narrowed into a point, hairy beneath, 6 to 9 inches long; flowers, greenish-yellow, cup-shaped, about 2½ inches deep, appearing in June or July, from New York southward, in the mountains, a very handsome and distinct hardy tree, deserving of a place in every park and garden. The young unripe head of carpels bears some resemblance to a Cucumber, hence the popular name. Introduced in 1736.

4. **M. macrophylla.**—A deciduous tree, from 30 to 40 feet high, with the large leaves borne only near the ends of the branches, and large campanulate flowers, nearly a foot in diameter, when fully expanded. Leaves, obovate or oblong-ovate, cordate or lobed at the base, and often as much as 3 feet in length; flowers, white, with a purple centre, appearing in July. From the large size of its leaves, which are of a silvery-glaucous hue beneath, and its showy flowers, this is a very striking tree, but it is not so ornamental as some of the other species in habit of growth. Banks of rivers in Kentucky and North Carolina, and southward. Introduced in 1800.

5. **M. cordata.**—A deciduous tree, 20 to 50 feet high, according to the situation in which it grows. Leaves, broadly ovate, 4 to 6 inches long, silvery, hairy beneath; flowers, yellow, more or less

streaked with red, appearing in May or June. Carolina, and southward. Introduced in 1800.

6. **M. Umbrella** (syn. M. tripetala).—A tree of moderate dimensions, having the large leaves clustered near the ends of the branches, hence the popular American name, Umbrella tree. Leaves, oblong or obovate-lanceolate, narrowed at the base, and often more than 2 feet in length. Flowers, large, white, of a disagreeable odour. Pennsylvania to Virginia, &c. Introduced in 1752. A very handsome ornamental tree.

7. **M. Frazeri** (syn. M. auriculata).—A deciduous tree, 30 or 40 feet high, having its leaves crowded at the ends of the branches, like the last, but in this species they are distinctly lobed at the base, like those of M. macrophylla. Leaves, obovate, glabrous on both sides, from 6 to 12 inches long. Flowers, white. A southern species, flowering in May. Introduced in 1786.

Japanese and Chinese Species.

8. **M. Yulan** (syn. M. conspicua).—A deciduous-leaved species, introduced from China in 1789, and requiring protection north of London, and even south of London in severe seasons, or the flowers are apt to get injured. It is an exceedingly beautiful species, but less effective than some others, on account of the flowers being produced in early spring, before the leaves are developed. Leaves, oblong or broadly oval, with an acuminate point, hairy when young. Flowers, white, as large as those of Nymphæa alba. There are some varieties of this, or hybrids between this and the next, which are very beautiful, and some of them are in flower at the present time (September 6). M. discolor has purple and white flowers, appearing with the leaves in May, and is, perhaps, a seminal variety of the next species. M. Soulangeana is a handsome variety, having the petals tinged with purple.

M. gracilis, by some considered as a distinct species, has rich violet-crimson flowers, the outer petals 4 inches in length, and very handsome foliage—indeed, it is one of the most beautiful shrubs in flower now. There are also several other varieties blooming at the present time, differing from the last-named in the colour of the flowers, which vary in different varieties from white and pink in diverse proportions to pink and violet-purple. In habit and foliage they are intermediate between M. Yulan and M. obovata, and, from what I can gather, these two species have been crossed and intercrossed with their varieties, and the varieties again crossed. These varieties are quite hardy.

M. Lennei is a natural hybrid between the two, having originated some years ago in Italy; it has the more highly-coloured flowers of obovata, but it is difficult to distinguish among the many varieties now cultivated in different gardens.

9. **M. obovata** (syn. M. purpurea, "Botanical Magazine," plate 390).—A dwarf deciduous shrub, with dark green obovate leaves and large flowers consisting of six petals, violet-purple on the outside and white within. The fragrant showy flowers and handsome leaves unfold together in April and May. Quite hardy; introduced from Japan in 1790.

M. Kobus (syn. M. tomentosa), is a Japanese hardy species, with purple and white flowers in summer; M. hypoleuca, from the same country, has leaves a foot in length, glaucous beneath; and M. parviflora has small flowers, more in the way of the North American M. glauca, and nearly orbicular leaves. M. pumila (syn. M. Championi) is a tender species from south China, with coriaceous and strongly-veined leaves, and rather small flowers. So far as I am aware only the first of these unnumbered species has been introduced, and that I do not remember having seen in a fresh state.

Indian Species.

10. **M. Campbelli.**—A magnificent deciduous tree, with ovate-oblong leaves and large crimson and white flowers nearly a foot in diameter. This was only introduced about twelve years ago, and is still very rare in this country, and little is known of its constitution, but it will, doubtless, prove hardy in the south and west at least, as it is found up to an altitude of 10,000 feet in Sikkim. Unfortunately, like M. Yulan, this flowers in spring before the appearance of the leaves; but some splendid hybrids might probably be raised between it and some of the late-flowering varieties mentioned under the former.

M. globosa is a small white-flowered species from the same region, between 9,000 and 10,000 feet. Not yet introduced; and there are two species known in sub-tropical regions.

Manglietia.—A mall genus, differing from Magnolia in having more than two ovules in each carpel. The species, about five in number, are natives of tropical Asia, one species, M. insignis, ascending to 10,000 feet in the Himalaya Mountains. This is a lofty tree, with fragrant pink flowers. It is not yet in cultivation.

Michelia.—Another Asiatic genus allied to Magnolia; but, in this genus, the head of carpels is elevated on a stalk, and the flowers are usually in the axils of the leaves, not terminating the branches.

1. **M. Champaca,** a native of the temperate regions of the Himalaya, was introduced in 1799, and is sometimes seen in botanic gardens. It is a tall tree, with shining ovate-lanceolate leaves, and deliciously fragrant, yellow flowers, about 2 inches in diameter.

Liriodendron.—Technically, this genus differs from its allies in having the face of the anthers directed outwards, the reverse being the case in all the other genera; and the carpels are winged, falling to the ground with the seed. Until quite recently, L. tulipifera, the Tulip tree, was believed to be the only representative of the genus; but a collection of dried plants, collected by Dr. Shearer in central Asia, and sent to Kew, contains a specimen (leaf-branch only) of what appears to be a second species. It has more deeply-lobed leaves, of a glaucous hue beneath. Dr. Shearer expresses his belief that it is a native of the Kiukiang Hills. The Tulip tree is a native of North America, from Canada to Florida, and is the hardiest, and perhaps the tallest, tree of the family, occasionally attaining a height of 150 feet in its native country. In England it overtops many of our indigenous trees, trees 80, 90, and 100 feet high being recorded from various parts. It is readily known from all other trees, independently of its deep yellow flowers, which are freely produced in this country, by its curiously four-lobed truncate leaves, shaped like a saddle-cloth. There is a remarkable variety called integrifolia, in which the two lower lobes are wanting; and there are several other slight varieties, including one with variegated foliage. The Tulip tree was introduced in 1663, and is a valuable ornamental tree for a variety of soils. It is the white-wood of North America.

Tribe IV.—Schizandreæ.

Climbing shrubs, with unisexual flowers and fleshy carpels.

Schizandra.—In this genus, the ripe fleshy carpels are arranged in a spicate manner on a cylindrical torus. The tropical plants known in gardens under the name of Sphœrostema belong to this genus; also Maximowiczia.

1. **S. coccinea.**—The only North American species, found in South Carolina and southwards; hence it requires shelter in most parts of England. Leaves, oblong-acuminate, on long stalks. The scarlet flowers are small, and the scarlet fruit is rarely produced in this country in the open air. Introduced in 1806.

2. **S. chinensis** (syn. Maximowiczia chinensis).—A hardy, almost evergreen, climber, of comparatively recent introduction from north China. It grows to a height of 20 feet or more. Leaves, oval, bright green; flowers, bright rosy-carmine, succeeded by scarlet fruits, which are persistent during the greater part of the winter.

3. **S. grandiflora** (syn. Sphærostema).—A north Indian species, growing on the Himalayan Mountains, between 6,000 and 10,000 feet. It has rather fleshy, oblong-lanceolate leaves, pink and white flowers, followed by a scarlet fruit. Not in cultivation.

4. **S. propinqua** (syn. Sphærostema).—From the same region as S. grandiflora, but less hardy, not ascending above 4,000 to 6,000 feet. Similar to the last, with small orange-yellow flowers. Introduced in 1828, and requiring a warm greenhouse temperature.

5. **S. marmorata** (syn. Sphærostema).—A pretty species with marbled foliage, introduced from Borneo in 1860, and usually treated as a stove plant. It does not appear to have gained much in favour, and is now seen in few catalogues.

Kadsura.—Differs from the foregoing genus in its spherical, not oblong or cylindrical, fruit. There are several Indian and east Asiatic species, but the following is the only one in cultivation.

1. **K. japonica.**—A trailing or climbing evergreen, with lanceolate, acuminate, distinctly-toothed leaves, and small yellowish-white flowers, succeeded by a scarlet fruit. A native of Japan, flowering in autumn, and said to require shelter north of London. It was introduced in 1846.

W. B. Hemsley.

NOTES AND QUESTIONS ON TREES AND SHRUBS.

Silver Firs at Longleat.—Mr. Geo. Berry informs us that the Silver Fir attains a height of from 130 to 140 feet in the park at Longleat. Measured at 5 feet from the ground, they average from 14 to 15 feet round. The situation is open and somewhat elevated, and the soil a stiff loam resting on clay.

Pyrus hybrida.—This fine showy tree has for the past few weeks been crowded with its showy fruit. It forms a large spreading tree, and is a hybrid between the Mountain Ash and the White Beam tree. There is a fine old specimen of it in the Fulham nurseries.

Retinosporas.—Seventeen varieties of these hardy and graceful trees are grown by Mr. Sam. B. Parsons, in his nurseries at Flushing, Long Island. He also has in cultivation thirty distinct varieties of the interesting Japanese Maples. The frequent communication between America and Japan, now-a-days, has led to the introduction of many Japanese plants, which are found to withstand the extreme cold of the Northern States.

COLLECTING ALPINE PLANTS.

Before pointing out the method which should be employed in digging up Alpine plants intended for cultivation, it will be useful to describe shortly the instruments that are necessary and convenient for the purpose. First may be mentioned the mattock, which differs greatly both in form and size; the only kinds, however, to be used in plant collecting are those that offer the greatest amount of resistance. Nothing is more annoying during a mountain excursion than to find one's self in possession of tools that are incapable of bearing a moderate strain, seeing that, under such circumstances, no remedy is at hand. The mattock represented by the annexed woodcut (fig. 1) is one of the most useful and portable that we have seen. It is the same as that used by the pupils at the Paris Museum for collecting plants in the neighbourhood. It consists of a blade about 6 inches in length, and measuring at its base one-third of an inch in thickness and about half-an-inch in width, widening and becoming thinner towards the edge, where its width is about 1 inch; its socket, which is from 1 to $1\frac{1}{4}$ inches in diameter, is stout and strong, united interiorly or by means of a screw. Into this fits a handle made of strong, but supple, wood, not longer than 2 feet 4 inches or 2 feet 6 inches, and showing, at its base, where the blade can be tightened by a screw, a diameter somewhat larger than in other parts. We must, however, confess that, notwithstanding its advantages, and in spite of the condition of strength that it presents, this instrument is not one to which we are inclined to give preference for extracting plants from mountain habitats. We prefer what is known as the Cosson mattock, represented by the accompanying woodcut (fig. 2). This instrument which is well known amongst plant collectors, and which its celebrated inventor used constantly in his laborious, but fruitful, excursions in South Africa, consists of a massive piece of iron, between 7 and 8 inches in length, which at one end has the form of a hammer, and, at the other, that of a mattock blade. The latter commences to decrease in thickness from the point; the hammer —properly so called—finishes and widens gradually towards the edge, which is slightly curved. The size of the hammer which serves as a counterpoise, is about 4 inches in length and about 1 to $1\frac{1}{2}$ inches in breadth. The handle does not exceed 16 inches in length, and should be of strong wood—of Ash, for example—of a rounded-oval form. Two convex iron keys, each from 7 to 8 inches in length, are fastened to each rounded side by means of two screws; this increases the strength of the instrument, and renders it capable of conquering all the obstacles which are presented by plants most difficult to uproot. Like the mattock, the trowels differ from one another in form and dimensions. This tool (fig. 3) consists principally of a steel plate of various forms—it may either be rounded, heart-shaped, or even triangular; but its extremities and edges must always be sharp, and it must invariably be furnished with a strong socket, into which is fitted, as securely as possible, a hard flexible handle of Holly, Thorn, or Ash, which may vary in length, but which should, nevertheless, be under 4 feet in length—the shorter it is the greater the strain it will be capable of bearing. A rib, extending from the base of the socket to about a third or half the length of the blade adds greatly to the strength of the tool. Its length should not exceed, at the outside, 6 inches, or its breadth 4 inches. The blade of the trowel may be a fixture, but a moveable one is to be preferred. The latter kind may, if circumstances require it, be fixed to the end of a stick or cane, or even to the traditional *bâton* of tourists, if it be fitted with a screw for this purpose. The plant having been secured, the trowel blade should be taken off, and replaced either by an iron point or ferule. Trowels are not, however, the tools that should be selected for digging up Alpine plants; for, however strongly they may be made, they are always breaking. The knife, of which the annexed is an illustration (fig. 4), is a capital implement in the hands of a collector. It has a strong sharp blade of iron or steel, slightly curved towards the point, which is keen-edged. It is ribbed throughout its entire length, which gives the blade much additional strength. The handle is of hard wood, almost square, but with the sharp angles rounded off. The entire length of this knife, including the guard, is about 18 inches, of which the handle takes up 8 inches; the blade measures 10 inches, and at its widest part 2 inches broad. This knife is easily carried, and if kept in a leather sheath and suspended by a belt of the same material it is always at hand. Finally, a good pruning knife and a sicateur complete the list of the implements that are indispensable. The long-handled mattock is well adapted for lifting plants in a permeable or sandy soil, as, for instance, in the damp beds of mountain torrents, or in loose *débris.* The trowel will be found most useful when dealing with plants growing upon steep slopes or in rocky fissures. The knife is capable of rendering valuable service in digging up specimens whose roots do not run deep, and especially such as are of comparatively small size, also such as grow in soft *débris* or stony ground, or in the fissures of rocks. The Cosson mattock, from its strength (for there is little risk of its breaking), and the ease with which it may be used, is the instrument upon which most dependence is to be placed, and to which, therefore, preference should be given—in fact, we always make use of it, and that under all conditions of ground that can be met with—gravel, rock, loose *débris*, fields, or marshes. Shrubs, even, cannot withstand its force, and when by chance their roots are buried deeply, the pruning knife or secateur is used to cut them to the length that is thought sufficient without prejudicing the removal of the plant. Perhaps it may be useful if we point out that the shorter a lifting implement is (within, of course, certain limits) the easier will be the work. It is easier to see what one is about, and, in order to take up a plant properly, it is absolutely necessary to take some trouble—to stoop down, and so direct the instrument that the least possible harm shall accrue to the roots in the removal of the subject. It is impossible to do this with a long-handled instrument however adroitly it may be used. But before dwelling any further upon the measures necessary for the removal of a plant intended for cultivation, we should point out another article which is no less indispensable for the purpose than those we

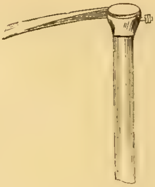


Fig. 1. Alpine Mattock.

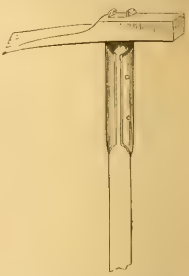


Fig. 2. Alpine Cosson Mattock.

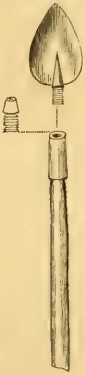


Fig. 3. Long-handled Alpine Trowel.

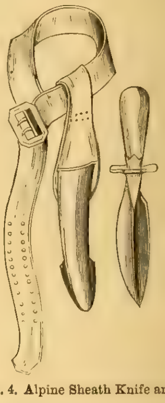


Fig. 4. Alpine Sheath Knife and Belt.

have already mentioned. We refer to the cases in which the plants can be carried. These cases are made of tin; their form is in general that of a cylinder somewhat flattened at two opposite sides, and opening at one of them by means of a hinged lid. This lid takes up two-thirds, or often three-quarters, the total length, and is furnished with one or more clasps, by means of which it is kept closed. A leathern strap, which is passed through a ring at each end of the upper side of the box, permits of its being slung over the shoulders. Its dimensions vary much, from pocket kinds to those which are only used occasionally in distant excursions. Sometimes these cases are provided with but one compartment, sometimes with two, a large and a small one. The case most suitable for the purposes now under consideration should measure in length 2 feet 6 inches, and should have a diameter of 12 inches, and a depth of 8 inches. In form it should be a somewhat flattened cylinder, and its two compartments should each have its own lid. The larger lid has three hinges; the smaller one two, which, when the case is small, may be reduced to one. These lids are closed by strong clasps. Two might perhaps be necessary for the larger kind; but it is as well to avoid anything that is not actually required. The plants are placed in the case as they are taken up; the roots should all be placed at one end, taking care in carrying the case that this end should be at a lower level than the other, to avoid the effects of jolting. In botanical excursions in mountainous countries it is rare that a single box is sufficient to contain all the plants that may be gathered. In that case, they may be tied up in a cloth, or, better still, an oil-cloth. If the excursion is only made to a short distance, and in the neighbourhood of a house, where some time may be spent, as is the case at Mont Cenis, Lauteret, and elsewhere, a large basket would be preferable to the tin case. Under these circumstances, each plant is placed as before recommended, after having been wrapped up separately in a sheet of paper.

Collecting Excursions.

It will be advisable to point out what precautions are necessary in extracting the plants from the soil, for it will easily be understood that the first condition of success in collecting is extreme care in taking them up. We may remark that, calcareous or calcareo-schistose mountains are infinitely richer in plants than those of granite; upon the latter, however, are to be found certain kinds that might be sought for in vain elsewhere, but, as regards number and variety, the calcareous mountains are far more prolific, and afford a better opportunity of making a fine collection. If we endeavour to ascertain what parts ought to be considered preferable to others as regards the opportunities they afford of making a comprehensive collection, we shall find that all offer, if not equal interest, at least a certain number of kinds which are peculiar to them, and we should remember what each district that we explore is likely to supply, from the foot to the top of the mountain. The spurs and copses, which are situated at lower altitudes, only supply certain species peculiar to sub-alpine regions, some of which, however, are worthy of consideration—as, for example, Cypripedium Calceolus. The first interesting field of discovery will be amidst the numberless valleys which intersect the higher mountains, the beds of gravel bordering the torrents which sometimes descend from the snowy summits, and the grassy eminences which they have formed, where species which belong to the higher regions are often to be met with. With equal care should be examined the rocks, often rising almost perpendicularly, or the *débris*, more or less plentiful, which follows the course of these valleys; their examination will enable the collector to secure many plants which have descended from the higher regions with the avalanches. At last the region of forests is gained. No long stay need be made in such parts as are most thickly covered, especially where Conifers only abound. The rocky *débris* more or less covered with Grass which succeeds them, or which occur even in the glades of the forests, should, however, be carefully examined. But it is the open fields and meadow land which will be found to yield the best results; the margins of lakes, too, and of brooks, as well as the dryer regions, should be carefully examined. The moving *débris* that is found at greater altitudes, and which is, in general, formed by the disintegration of the upper rocks, as well as the fissures of the rocks, will furnish to the explorer an excellent opportunity of gathering not only the varieties which advance as far as the limit of perpetual snow, but also those of the most inaccessible rocks. It is difficult to state precisely the best time for making the ascent of a mountain for the purpose of collecting plants. Experience, however, shows that it is better to secure them before they have gone through all the phases of their growth. If their collection be made too soon, they will be rendered, if not utterly valueless, at all events, incomplete, by the half-developed state of certain late varieties, which would be passed over unperceived; on the other hand, if made too late, the plants will suffer, for it is essential that the greater part of them should have pushed root growth before winter in order that their ultimate safety may be a matter of certainty. Perhaps the best period is, on the whole, from about the middle of July to that of September. We now know the articles necessary for making the collection, viz., the tin case and the Cosson mattock, as being the strongest and the easiest to handle. We must not forget twine, some sheets of paper, and some paper bags for holding seeds. The latter should always be gathered when they are quite ripe and, as far as possible, during dry weather. However, as it is not always possible to have one's choice in this matter, it is best to gather them in whatever state they may be found. If they are damp they should be spread out on a sheet of paper and allowed to dry, when they may be placed in bags, upon which their name should be legibly written. The method to be adopted in taking up plants intended for cultivation must depend upon their habits of growth. It is better, in most cases, to preserve the whole of their roots, but it is not invariably necessary to do so, especially in the case of kinds with wide-spread fibres. The same observation applies to plants furnished with a single tap-root surmounted by a large number of slender stems. Monocotyledons, on account of their habits, are nearly always easy to extract from the soil, as their roots generally do not penetrate deeply. As an exception, we may mention the fasciculated roots of Asphodels, sub-alpines, and of Paradisia Liliastrum, which penetrate deeply, and which it is necessary to preserve without breaking. As to the Dicotyledons they present various types; but, as a rule, they are difficult to extract from the soil. From these two Orders let us select a few examples. We have before us, say a Martagon Lily, the petals of which bend towards the peduncle. Its stem is single. By a few strokes of the mattock the soil is cleared away around the plant, and the hillock left in the centre is then operated on until the scales of the bulb, out of which the stem rises, are visible. That done, it is only necessary to give a smart blow with the mattock, an inch or two off the bulb, and up it comes intact. If we have to deal with an Asphodel or a Paradisia, when we have uncovered the collar of the stem, which is equivalent to the top of the scales of the Lily, it will be found that the stem starts from fasciculated roots of a certain length, that spread out in a horizontal direction; and that, in order not to break them, care should be taken to leave in the centre a larger mass of earth, and, at the same time, the mattock should be inserted more deeply before raising it. This operation completed, it only remains to clear the ramifications of the stem of the earth, or pebbles, that adhere to them. The difficulty is increased when we have to deal with plants like the Astragalus aristatus, which has a long tap root, which buries itself perpendicularly in the soil, and has but few ramifications, and these only at the end. The depth to which it sends down its roots becomes so great that, except under the most favourable circumstances, success in lifting it is almost hopeless. For plants of this character, we should advise only young specimens being dealt with, in which the drawbacks just alluded to are not so fully developed as in older specimens; and, in operating, as has just been described, it is possible to obtain plants sufficiently provided with roots to transplant successfully. In many cases, however, it is not necessary to bring much labour to bear on the extraction of plants; and kinds such as the Dianthus neglectus, Silene acaulis, and others belonging to the Caryophyllaceæ, may be dug up without the whole of their principal roots, as may also be Saxifraga muscoides, and other cæspitose-stemmed Saxifrages, Sedum oppositifolium, Aretia Vitaliana, Androsace villosa, &c. For the latter a few old roots will be sufficient, on account of the facility with which they form new fibres. They are plants that are easily taken up, a few strokes of the mattock being sufficient to raise them intact. The same remark applies to herbaceous plants of rampant growth.

Removal of the Plants.

A journey amongst the mountains is not usually limited to one day—oftener, especially when the end to be attained is plant collection, it occupies several days. Whatever the length of the trip may be, one rule that should never be lost sight of is that an effort should be made to reduce, as much as possible, the period of time between digging up and despatching the plants, and between the latter and planting. If the trip requires several days, it would be best to seek in the neighbourhood a house or cottage, such as those met with in the mountains of Dauphiny and the Pyrenees. By this means the collection will have every chance of being a good one; for, starting early in the morning with a large tin case, a strong mattock, and some provisions, a return need not be made until the evening, when you will be accompanied by a heavy but valuable burden. By this means, also, three or four days will be sufficient to gather, if not all, almost all, of the varieties growing in the vicinity, as well as those which belong to the higher surrounding regions. Amongst the mountains that we have explored there are three localities which unite in the highest degree the following advantages, viz.:—Number and rarity of the species, and possibility of remaining near the spot—these are Lauteret and Mount Viso in the high Alps and Mont Cenis in Savoy. Whatever the plants are they should be put into the tin case as they are taken up, taking care that the roots are placed as much as possible in the same position, and always at the lowest end of the case. If the stems are very large, there is no trouble in cutting off a few inches of their length; if the leaves are superabundant, a portion may be cut off; if the roots are too large there is but little difficulty in cutting away parts of them with the secateur, especially if they readily throw out roots. One point upon which we have as yet said nothing must not be wholly overlooked, and that is—should a certain amount of earth be left round the roots when a plant is pulled up? We have always been glad to remove this earth; it is not necessary to push this to extremes; but, when the roots are abundant and more or less developed, only a small quantity of earth need be left. Orchids even succeed better when their tubers are bare than when replanted with a ball of earth. A basket is, in some respects, superior to the tin case; in it the plants may be placed more easily; but it will be understood that its use will only be advantageous where the space to be examined is a limited one. For example, at the Hospice of Mont Cenis and of Lauteret, or the Châlet de Ruines, near Viso, where you have only to stoop, so to speak, to gather the plants, the basket will be found more convenient than the tin case; but the latter is indispensable when the journeys are far from head-quarters, or where the route becomes difficult and the utmost liberty of movement is required. Seeds should be gathered, as has been said, in bags; for bulbs and small plants the small compartment of the case may be reserved. On returning home, the plants should be at once packed and despatched; but, if the excursion is to extend over several days, this daily packing and despatching may be dispensed with until the proceeds of three or four days' journeys have accumulated. Under these circumstances the plants must be placed every day in a cellar, where they should not be piled one upon the other, but should be spread out, the stems being placed higher than the roots, and a space left between them to prevent fermentation. Damp Moss should then be laid over them, or, if this cannot be obtained, they should be sprinkled with water. It may, however, happen that there is no cellar available, and, in that case, their roots should be inserted in lines in a shady spot in the open air, the collars of the plants appearing just above the ground, which should be made firm as each row is finished.

Packing and Despatching.

Whilst exotic plants require the greatest care in packing, mountain species may be very easily and simply packed; a basket or box fulfils the end thoroughly. An oil cloth, or a bale made out of long and dry hay, may be made to answer the same purpose. Good packing cannot be done without Moss, and this is not difficult to obtain in a mountainous country; but it should never be used if it does not fulfil all the conditions of dryness which are desirable. Moss that is too damp will not answer, especially if the journey is likely to last several days, as it has the effect of rendering the plants mouldy and rotten. Packing-time having arrived, a layer of Moss should first of all be placed at the bottom of the case or basket; then a layer of plants, first making use of such as have the heaviest tufts. Each individual plant should be wrapped up in paper, which prevents their becoming soiled, and renders their packing a matter of greater facility. They should be covered with a second layer of Moss, and upon this a second tier of plants should be placed, and so on, until the case or basket is filled. If a basket be used, the final layer of Moss should be a little thicker than the others, and should be arranged so as to fill up all interstices, so that the effect of jolting may, as far as possible, be avoided. Then, over all, a thin layer of straw should be laid, which acts as a cover, and which should be fixed firmly, but not too tightly, by means of twine. If a packing case be used, the method of packing is the same; and it should not be covered in until it is ascertained by pressure of the hand that the plants will not move about in transit. Perhaps cases are, on the whole, to be preferred to baskets for the carriage of Alpine plants for short distances; but, should the journey happen to be long, baskets should be used; for, owing to the packing cases being tightly closed, their contents are apt to heat. This may be avoided, in some measure by boring small holes in the lid and sides. The collection made upon the last day may be left in the plant case, that is if the return of the collector has been definitely fixed to take place shortly afterwards.

Planting.

As soon as the packages have reached their destination, the first thing to be done is to open the cases or baskets, and remove the plants which they contain; they should then be spread out upon a table, and sheltered from wind and sun, and after that they should be covered with damp Moss, or should be gently watered, more especially if they cannot be got into the ground before the following day. It would be better, however, if they could be planted on the day on which they arrive. The necessity of all this care must, of course, depend upon the state of the plants at the time of their arrival. If the journey towards their new home has occupied a long time and they are somewhat heated, they should be taken out of their cases at once, and spread out in the manner indicated; on the other hand, if they have arrived in a good state of preservation, it is better not to remove them, except as they are wanted for planting. Some amongst them—the most vigorous—may generally be at once planted out in a somewhat rich and mellow soil, resting on good drainage. As a rule, however, all should be planted in pots, and in roughly broken up peat. As little as possible of the soil attaching to the roots should be removed, but it should be divested of all weeds. All kinds should, where it is possible, be planted in pots of the same size. The pots, termed seedling pots, are those that should be used for the purpose. The useless stems should be removed as well as the dead leaves and damaged portions of the roots, and it is also necessary to cut back those that are too long or too numerous even where they are sound. The planting having been brought to a close, a label should be attached to each variety, and the pots should then be removed to a frame, where the plants should be watered with a very fine-rosed watering-pot, and the glass should be kept down for a few days, in order that new roots may be induced to push. Success can only be a matter of uncertainty unless attention is paid to this matter. It is also necessary to shade by means of mats or by whitewashing the glass. Air should, however, be given, and the soil in the pots should be kept somewhat damp, and the dead twigs and leaves should afterwards be removed. During winter these new introductions should receive the same treatment as the rest of the collection, and in the spring the greater part of them may be planted out in situations best suited to their requirements, but, on no account, should the entire collection of any one variety be planted out, in case it should get lost.—Verlot's "Alpine Plants."

HORTICULTURAL HEAT WITHOUT COST.

There can no longer be any doubt of the success of lime-kiln heating. At Garston, four lime-kilns heat several acres of glass-houses, and nearly 4 miles of 4-inch piping, to a temperature ranging from 110° to 140°. Those who have been accustomed to test their hot water in the pipes by thermometers may rest assured that these temperatures are sufficient for all horticultural purposes. It is as imprudent as impolitic to force a maximum of heat into a minimum extent of radiating surface in horticultural or other artificial heating. It is safer and more economical to pay for iron once than consume coal, which daily costs money. Of course, by limiting the amount of work to a lime-kiln boiler a higher temperature of water may be reached than by any other system of heating; for no ordinary furnace glows with the intensity of a lime-kiln—in fact, neither bars nor furnace-doors could withstand such a tremendous heat. But Mr. Cowan was not bent on any sensational results; on the contrary, his aim was practical usefulness; hence, he attached to each of his two larger boilers nearly 3 miles of piping, and it was at once a proof of the immense power and practical usefulness of lime-kiln heating that the above temperatures were soon reached by such enormous volumes of water, at distances ranging from 50 to perhaps 500 feet from the boilers. No one at Garston during the past week could fail to be convinced of the power of lime-kiln heating—that is settled once for all. Of course, it is possible to overburden a lime-kiln with work. Some build a kiln capable of heating 2,000 feet of hot-water piping, and forthwith attach 3,000 feet to it, and then, because satisfactory results are not obtained, under-rate the system. Others, again, have a large kiln and a small boiler, and expect three times the work the latter can accomplish. Mr. Cowan is, therefore, now fully alive to the importance of adjusting the area of the kiln and the size of boiler to each other, and both to the amount of work to be done, *i.e.*, so much kiln space and boiler surface, to the number of feet of piping, of a given size, to be heated. These matters he has carefully balanced, and the result seems satisfactory. The relative position of the kilns one to the other, and their adaptation to the work to be done, are also admirably managed. There are three kilns, but one of them is a gas-kiln, and is not intended to be used unless when gas is wanted, or its extra heat is required, so that practically the immense number and variety of glass structures of the Garston Vineyard are heated by two lime-kilns of equal size. The pipes are so disposed and furnished with stop cocks that only one kiln may be used or both, at discretion. These may, probably, have been made to secure economical working, and also cumulation of heating power on any part or house where it is specially needed; as, for instance, in the case of the large Pine-houses, which cover nearly a quarter of an acre, the winter Cucumber-houses, and the early Vineries to be started next month. The third, or gas-making and heating kiln, has also certain work appointed to it, and is connected with the other mains also. In fact, there is the most perfect arrangement made for isolating any one or two kilns from the others, and for concentrating the whole of their force on any one or on all parts. The company proves its faith in the system by first of all investing about £12,000 in the plant and stock, and then trusting the safety of the whole to the lime-kilns.

In a representative gathering of horticulturists which took place at Garston on the 17th, were several who had had lime-kiln heating in operation for one or two years. Mr. Bennett spoke in the most confident terms of its complete success at Hatfield. Never had he slept so soundly for years as he had done during the past winter. It only needed a look at the kiln during the evening to convince him that the houses would all be found warm enough in the morning. At points the very farthest removed from the kiln, and in houses only slightly heated, he had placed thermometers of the most sensitive description, viz., batches of Cinerarias; and in no instance had he found a leaf frozen. The kiln had also sufficed for winter Cucumbers, for early Grapes, and for stove and greenhouse plants—in fact, it was a perfect success. In answer to those who told him to put one down at his present nurseries at Rabley, he replied that he was within 2 feet or so of the water, and could not risk winter Cucumbers with his present shallow stokeholes. It may be mentioned in connection with this that Mr. Cowan seems to have succeeded in building the water out at Garston. The testimony of Mr. Gordon, of Niddrie, and of Mr. James Garnier, of Kylemore Castle, both of whom have had lime-kiln heating in operation for the last two years, was most satisfactory in favour of the efficiency and economy of the system—in fact, the verdict of all present was quite unanimous in its favour. Mr. Gordon pronounced it to be cheap, safe, and profitable. His small apparatus heated over 2,000 feet of piping, some of which is over 300 feet from the boiler, with the utmost certainty and ease. Mr. Garnier spoke in similar terms of his kiln, which heated over 9,000 feet, and which wholly saved the cost of fuel, which used to amount to about £300 a-year, coal being 27s. per ton, and lime only 1s. 6d. per barrel in his part of Ireland. The Messrs. Thynne, of Glasgow, have an apparatus that heats many thousand feet of pipe. They have to pay 10s. a ton for their limestone, and 8s. a ton for their coke, and they sell their lime at 24s. per ton. One ton of coke burns 3 tons of limestone, leaving a product of 2 tons of lime-shell, so that for every 38s. spent in raw material there are 48s. returned for the manufactured article, the difference being ample to pay the wages of a man to manage the kiln. Hence their horticultural heat is obtained free of cost. Abundance of similar testimony to the efficiency and cheapness of lime-heating was given the other day at Liverpool. Even at Garston the whole of the limestone comes by rail at an expense of 7s. 6d. per ton, and is, in fact, almost as dear as coal. Nevertheless, Mr. Cowan is confident as to the result. This much, at least, is clear, that already he is saving about half the coal bill which was incurred under the old system of heating the Garston Vineyard with sixteen boilers, and that every ton of lime sold will go to reimburse him for the other half.

One of the fallacies in relation to this system of heating has been that, as the coal has to burn the lime, more must, of necessity, be used than if it had been only to heat the boiler, while the very opposite of this is the fact. The heat of the coal liberates the dormant heat of the limestone or chalk, and renders it an active agent in the heating of the boiler; hence, the enormous reduction of the amount of coal employed in lime-kilns as contrasted with common heating. The same principle of a gain of heating force by doing more work is also more powerfully illustrated in the combination of gas making with lime-kiln heating. By placing one or more retorts over a lime-kiln, and between its crown and the base of the boiler, it might appear that there would be an interception and absorption of heat; but, on the contrary, as the glowing fire of the kiln leaps around the retort and warms its brick-covered sides to a white heat, it also rushes up to the boiler and runs its glowing tongue through the tubular base and forces itself against the substance of the boiler with more intensity; the fact being, that the whole of the heat arising from the coal within the retort, not coke and gas, which goes to utter waste in the ordinary process of gas making, or to burn out the brickwork, is, by this skilful combination of generating heat and light over a lime-kiln employed in still further adding to the heat of the boiler that is placed astride the retort. The gas made is also of the highest quality, and the kiln that made it struck most of the meeting as giving by far the most heat in proportion to its size. Cheap heat, or artificial heat for nothing, is of incalculable advantage to us, and possibly cheap light may, in the end, be of equal importance. If the man who makes two blades of Grass grow where one grew before is a benefactor to his species, surely he who, like Mr. Cowan, has made light and heat plentiful, and cheap, is a greater benefactor; and I cannot conclude without congratulating Mr. Cowan on his well earned success. D. T. Fish.

Curious Instinct of Plants.—Professor Clark, of Amherst, gives in his late paper on plant life, an experiment performed by Mr. J. H. Gregory on a growing Squash Vine. When a shingle was set upright in the ground near the growing tip, the plant turned towards it. On removing the shingle to the opposite side, the Vine changed its course towards the shingle. Another Squash Vine, after running along the ground 10 or 12 feet, passed under the branches of a tree 4 feet above it. It stopped, and turned upwards, and grew in that direction until it could no longer sustain itself, and fell to the ground; it again rose, and again fell. A third effort was made with a like result, and it then ceased.

English and Botanical Names.—The "Horticulturist" says that the head gardener of New York Central Park, having been directed by the board having the park in charge (and who it appears know little of gardening or botany) to use English instead of botanic names, he wrote to six florists of reputation for the common or English name of a certain plant, the botanical name of which he furnished. From the six florists nine different English names were returned, showing the inaccuracy in using them. [It would be easy to show that plants are often as liberally furnished with Latin or botanical as with English names. There is no reason why we should not have an accepted English as well as a Latin name.]

PRICES OF CONTRACT WORK.

The following list of our contract prices may serve as a guide to some of your readers who may not be accustomed to let work by the piece. The money value given may be taken as fair approximate prices throughout the country; of course where higher day wages are paid the contract price will be higher in proportion—our day wages are low here, being only 2s. a day, but workmen prefer contract work, at which they can earn from 15s. to 20s. a week. Every operation that can be done by piece work is done in that way, by which we not only get through more work, but the system acts as a stimulus to the men, gradually converting a dull slow labourer into a quicker and better workman.

		s.	d.		s.	d.
Felling Oak timber	per ton of 40 feet	3	0	to	0	0
,, other hard wood	,, ,,	2	6	,,	0	0
,, Fir timber...	,, ,,	1	8	,,	0	0
Grubbing out timber	,, ,,	3	6	,,	4	0
Felling and carrying, together, saplings or Fir poles,	per score	1	6	,,	3	6
Cutting underwood, 12 to 15 years' growth......	per acre	9	0	,,	11	0
Turning do. do.	per score perches	1	0	,,	1	6
Making hurdles (wattle)	per doz.	3	6	,,	4	0
,, Welsh hurdles for sheep (wattle)	,,	4	0	,,	5	0
,, Do. for cattle do.	,,	5	0	,,	6	0
,, Fagots	per 100 of 6 score	5	0	,,	0	0
,, Oven fagots	,, ,,	3	0	,,	0	0
,, Small fagots for fire lighting..	,, ,,	1	3	,,	0	0
Cutting bonds for tying large fagots...	,, ,,	0	4	,,	0	0
Getting out hurdle rods	per score	0	1	,,	0	0
,, Hurdle stakes	per doz.	0	1	,,	0	0
,, Rake stems	,,	0	1	,,	0	0
,, Spade do.	,,	0	1	,,	0	0
,, Spick gads	,,	0	1	,,	0	0
,, Dahlia stakes	,,	0	1	,,	0	0
,, Rose do.	per 2 doz.	0	1	,,	0	0
,, Broom handles	,,	0	1	,,	0	0
,, Kidney Bean stakes	50 in a bundle	0	2	,,	0	0
,, Pea wood	per bundle	0	1	,,	0	0
,, Birch wood, for besoms	,,	0	1	,,	0	0
Stripping Oak bark	per ton	21	0	,,	0	0
Loading do. on wagons	,,	3	0	,,	0	0
Chopping do.	,,	8	0	,,	10	0
Fencing Materials.						
Getting out and mortising 4 holed posts	per score	4	0	,,	0	0
,, ,, 3 do.	,,	3	0	,,	0	0
,, ,, 2 do.	,,	2	6	,,	0	0
,, ,, 1 do.	,,	2	0	,,	0	0
Getting out and cleaving rails	,,	0	10	,,	0	0
,, ,, stakes	,,	0	6	,,	0	0
,, ,, long pales	,,	0	6	,,	0	0
,, ,, short do.	,,	0	4	,,	0	0
Fixing 4-rail mortised fence	per chain	3	6	,,	0	0
,, 3 do.	,,	3	0	,,	0	0
,, 2 do.	,,	2	6	,,	0	0
,, 1 do.	,,	2	0	,,	0	0
Hanging field gate		4	0	,,	5	0
,, half do.		2	6	,,	0	0
Fixing stile		2	0	,,	0	0
Getting out and cleaving posts, rails, and pales, for tree guards	per set	0	9	,,	0	0
Fixing do. do.		2	0	,,	0	0
,, Deer park fencing		7	0	,,	8	0
Sawing hard wood	per 100 ft.	4	0	,,	4	6
,, soft do.	,,	3	0	,,	3	6
Making bank for Quick hedge (4½ ft. wide at bottom, 2½ ft, at top, and 15 or 18 in. high), digging ditch (36 in. wide at top. 30 in. deep, and 9 in. wide at bottom), and planting Quicks	per chain	7	6	,,	10	0
Hedge without bank or ditch, trenching ground, preparing bed, and planting	,,	3	0	,,	4	0
Trimming hedges, ordinary size	,,	0	9	,,	1	0
,, ,, extra sized	,,	1	6	,,	2	0
Cleaning young hedges	,,	0	8	,,	0	9
Laying hedge and scouring out ditch	,,	2	0	,,	3	0
Pipe draining, mains 4 ft. 3 in. deep, 4 to 6-in. pipes	,,	2	9	,,	3	6
,, small 4 ft. deep, 1½ to 2½-in. do.	,,	2	0	,,	2	9
,, do. 3 ft. 6 in. deep do. do.	,,	1	9	,,	2	6
Open ditching, mains or for drying wood rides, 36 in. at top, 30 in. deep, and 9 in. at bottom...	,,	3	0	,,	4	0
Scouring out ditto	,,	0	9	,,	1	6
Small open ditches, 15 to 18 in, wide at top, 12 to 15 in. deep, and 9 in. wide at bottom	,,	1	6	,,	2	6
Scouring out ditto	,,	0	6	,,	0	9
Digging holes for forest planting, 12 to 15 in. square, and 9 to 12 in. deep	per 100	1	6	,,	2	0
Digging clay	per yard	0	5	,,	0	6

Longleat, Warminster. GEORGE BERRY.

The Thermometer and Barometer.—Many persons have put their thermometers out of order by laying them down flat, or by allowing the top end to be lower than the bulb. The fluid has become separated, and an air bubble has crept into the fluid, which in cold weather has receded into the bulb, causing the thermometer to read higher than it should do. Another source of error is, when the indicating fluid has, by reason of its having been exposed to the rays of the sun in summer, become condensed in the upper part of the tube, mostly under the brass loop; when this is the case the thermometer will indicate lower. We have seen as much as 10° of fluid thus condensed in a colourless state, which is not easily detected. The following simple rules will set in perfect order any instrument so deranged:—Take the upper end of the thermometer firmly in the right hand, and swing it violently (bulb downwards) at arm's length; the chances are that, with half-a-dozen such oscillations, the instrument is put in perfect order. If the contrary be the case, take the bulb end in your right hand, and gently strike the top part of the thermometer on the palm of your left; continue this, holding the thermometer upright, and all the bubbles will disappear.—*A Rising Barometer:* A "rapid" rise indicates unsettled weather. A "gradual" rise indicates settled weather. A "rise" with dry air and cold increasing in summer indicates wind from northward; and, if rain has fallen, better weather is to be expected. A "rise" with moist air and a low temperature indicates wind and rain from northward. A "rise" with southerly wind indicates fine weather.—*A Steady Barometer:* With dry and seasonable temperature, it indicates a continuance of very fine weather.—*A Falling Barometer:* A "rapid" fall indicates stormy weather. A "rapid" fall with westerly wind indicates stormy weather from northward. A "fall" with northerly wind indicates storm, with rain and hail in summer, and snow in winter. A "fall" with increased moisture in the air and heat increasing indicates wind and rain from southward. A "fall" with dry air and cold increasing in winter indicates snow. A "fall" after very calm and warm weather indicates rain with squally weather.—NEGRETTI & ZAMBRA.

William the Woodman.—In one sense Mr. Gladstone is certainly a leveller. According to a Liverpool paper two hours before the meeting at Hawarden, the other evening, "Mr. Gladstone was engaged in his favourite exercise of felling trees. For a portion of two days he had been wielding the axe upon a large tree in a lane at the outskirts of Hawarden village, which he succeeded in bringing to the ground. Those who saw him say that he went to work in true woodmanlike fashion, with his braces thrown off behind him and his shirt collar unfastened. After completing his task he walked home with his axe slung over his shoulder, and two hours afterwards was at the meeting, looking, not tired and weary, but quite refreshed with his bodily labour." The Right Honourable ex-Premier depicted by a competent artist in the guise above described on his walk home, would most admirably serve for a wonder and a sign; namely, for the sign (*pace* Sir Wilfrid Lawson) of the Man in the Moon. Although his followers are disunited, he might be suitably represented carrying a bundle of real sticks. Long live the People's William to fell timber, if he prefers that occupation to the Liberal Leadership and lopping national expenditure. It is an employment which may typify advanced Liberalism; but whilst William is physically cutting down the Monarch of the Forest, his mind, when not engaged upon Vaticanism, is doubtless often most profoundly absorbed with the rumination of the wisest designs for the support and preservation of the British Monarchy.—"Punch."

Lilium auratum in Gloucestershire.—On locking into Mr. James Atkins's garden at Painswick, this week, I saw there a Lilium auratum, having a single stem loosely fasciculated, bearing forty-five flowers, the greater part of which were fully expanded.—L. J. G.

Aucuba Seeds.—I shall be obliged by some one, who has raised Aucubas from seed, if they will inform me of the proportion of male and female plants produced. I have raised many seedling Aucubas, but never succeeded in obtaining a male plant among the seedlings.—PROP.

Dianthus sylvestris.—This has densely tufted slender leaves, from 10 to 12 inches in length, and flowers an inch in diameter, circular, firm in texture, and sharply serrated at the edge, but not fringed; their colour is pale cherry-rose, two or three flowers being associated together on one head. It is perfectly hardy, but likes to grow on dry sunny ledges of rock, where it can root into fissures. It is a native of Switzerland.—W.

Houseleek-like Sedum (Sedum Sempervivum).—A curious little species, having the appearance of a Houseleek, with flat, wide, entire leaves in rosettes, bearing numerous lively purplish flowers on stems 6 or 8 inches high, and clothed with thick purplish leaves. It is a native of Spain, rather showy when in flower, and singularly distinct from other members of its family; it therefore merits a place on rock-work, where it is easily grown, and might also be tried on walls and ruins.—S.

The Royal Horticultural Society's Prize Money.—Will you allow me to slightly correct the paragraph relating to this matter (see p. 212). It is the prize money of 1874 that has just been paid, and for which the loan has been raised. All the prize money taken during the present year has been paid within a fortnight after each show, so that at the present moment the Society is no longer indebted to its exhibitors. This is a gratifying conclusion to what has long been a subject of grave complaint, and, no doubt, the result will be a good November fruit show.—A. D.

Mowing Machines and Tree Damage.—"N. H. P's" complaint (see p. 227) that his "rough labourers," by their awkward use of mowing machines damage ornamental trees, will not, I fear, elicit much sympathy. "Rough labourers," are most unfit persons to entrust with mowing machines, the use of which should only be confided to skilled workmen. A "rough labourer," might perhaps be entrusted with the mowing of a plain surface of Grass, provided the machine was properly set, but amongst flower beds and trees, he might soon do much mischief. If, however, "N. H. P.," wishes to protect his Hollies and other shrubs from further damage, let him fix some croquet-irons at certain intervals apart, around their base; these will keep the machines at a safe distance.—S. A.

No. 202.] SATURDAY, OCT. 2, 1875. [Vol. VIII.

"This is an art
Which does mend nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

LILY GROWING.

By G. F. WILSON.

TO THE EDITOR OF "THE GARDEN."

SIR,—You asked me for some cultural notes on Lilies. I send them as a stop-gap, waiting the arrival of Mr. Elwes' monograph, which will, no doubt, besides being a beautiful work, be the future standard authority on Lily matters. Though my experience in Lily growing dates back to a time when cultivators in general had not been awakened to the charms of this most beautiful family, I must begin by confessing that we have still many things to learn, and perhaps some to unlearn. In some seasons, notably when cold and wet follow after drought, even practised cultivators, except in most favoured situations, find that "blight and spot" greatly injure the growth and flowering of some species, even though the bulbs may be unhurt. The best situation for planting Lilies—at least in the southern counties—is a cool sheltered one; a very safe place is near the edge of a Rhododendron bed; soil that will grow Rhododendrons will also answer for most sorts of Lilies. I can give two examples where Lilies succeeded when left almost to themselves: one was in an old fashioned garden with a small lawn inside the main lawn, and sheltered and partly shaded by shrubs and trees. In the centre bed, among some dwarf Rhododendrons, I planted many sorts of Lilies, all of which succeeded perfectly. Blooms of Lilium auratum, gathered after a week of unusually stormy weather, were taken up to the Royal Horticultural Society, to show how little they had suffered. In the same garden L. auratum and longiflorum bloomed well in a peat Rhododendron bed, sheltered by the house, in a full southern exposure; but in this case watering was almost essential. The other situation is in the garden of a friend near here; his L. auratums are planted near the edges of large Rhododendron beds, and are partially sheltered by a high bank, and by belts of trees at some little distance; his Rhododendron soil suits admirably, and there appears to be moisture in the soil some little way down which the roots can reach. The result is, that season after season, even in the most unfavourable ones, hardly a Lily is injured, and their flowers, on stems from 6 to 11 feet in height, surpass any I have seen elsewhere. In Lancashire, not far from Rochdale, a friend has long grown L. speciosum, blooming it well in an exposed border without taking up the bulbs. Most gardens have a north border where there are spaces between small shrubs; if a little peat and sandy loam is dug in, and the bulbs planted 5 or 6 inches deep, Lilies are almost sure to thrive. Some Lilies, however, such as L. candidum, L. Martagon, L. Szovitsianum, and L. Chalcedonicum, require a stronger soil and like loam. All the Tiger Lilies grow well in ordinary soil; the old L. tigrinum sinense is well known in gardens, but L. tigrinum splendens, which richly deserves its name, is but little known. Very many bulbs of L. tigrinum Fortunei, which has a very woolly stem, are sent out in mistake for tigrinum splendens, the original error having been widely extended by means of stem bulbs. L. tigrinum splendens has more the character of the old L. tigrinum sinense, only magnified in height, size of flowers, and especially size of spots. It shows beautifully in Rhododendron beds, in the centre of other beds, indeed, in any situation for which its height—7 or 8 feet, or, with large bulbs, probably 9 feet or more—does not disqualify it. L. tigrinum flore pleno is a showy Lily which lasts long in flower. I think L. tigrinum erectum a desirable variety, but with this opinion the floral committee of the Royal Horticultural Society does not agree. Lilium longiflorum, with its varieties eximium, Takesima, &c., sometimes blooms very well in borders, but care should be taken that they are not injured by spring frosts. This Lily is such an early one that, unless protected by the leaves of Rhododendrons, or otherwise, its growth is apt to be checked. This season, L. longiflorum in a very cool sheltered situation here grew high and bloomed well. The comparitively recently introduced North American Lilies, such as L. Humboldti, Washingtonianum, puberulum, pardalinum, Robinsoni, californicum, &c., no doubt will soon be grown perfectly in borders; but here, at least, though some thrive well, others, in places where they ought to succeed perfectly, have not always done so, the foliage of L. Humboldti especially not keeping its healthy colour. Cultivators must not be discouraged when newly-imported bulbs do not show up the first season. I have just been examining two small beds, in each of which twelve fine bulbs of L. Humboldti were planted. The soil of one bed consists of two parts of peat and one of loam, the other of loam with a little sharp sand mixed; in neither bed the bulbs made upward growth, but, on examination, seem healthy, and have made roots. In adjoining beds, with the same two soils, a dozen L. Szovitsianum in the peat and loam made miserable growth, while the dozen in the loam and sand bed have many of them flowered well and seeded. In other two beds with six L. auratum all came up fairly, but in the loam and sand bed the six were rather the strongest; all the bulbs were newly imported ones. The above, I think, shows that imported bulbs of different Lilies have different times in establishing themselves, and that with cold and wet in the early part of the season the soil which suits Lilies best in normal seasons may not then give the best results. Many of the varieties of L. superbum are very beautiful, they like shade and rather moist soil. Some years back, I do not know whether it still exists, there was a grand undisturbed bed of L. superbum at Messrs. Waterer's, at Woking; the Lily was at home in the moist peat; the great tall stems, with richly coloured flowers, had a very fine effect. L. canadense, in all its varieties, grows easily, and is very beautiful. It is usually said, find the native habitat of a plant, and reproduce it as nearly as you can; if a Lily be found in shady places, grow it in shade; but a distinguished Dutch chemist-botanist, who has himself done great things as regards introduction of different plants, especially into Java, once showed me that this was not a universal law, or rather that what appears to be the reproduction of the habitat, is really not so, and that one unattainable condition sometimes changes the whole circumstances so completely that he had known plants which, in their own country, flourished in shade, when transported, to thrive best in sun. The moral is, I think, where possible, try experiments for yourself, plant a few bulbs in very different situations—the first year will tell you in which direction to steer. I must end with a few words on pot cultivation. We have some thousands of bulbs, both little and big, planted in the open, but I think there are some species which cannot be brought to their full beauty except under a roof. Perhaps the simplest way is to mention how our Lilies are treated, which species succeed well here, and which do not. Till lately the Lily-house was an orchard-house, 60 feet by 20. In this Lilies answered very well except in very hot weather, and then some of them, when in bloom, were moved to a rough shed, open at the front and facing north. Last year a house was put up, giving as much air as possible, in our shadiest corner; it gets only the east sun. The Lilies succeed very well, and the blossoms last longer than in the orchard-house. Had we the situation, a house should be placed in complete shade, for I feel sure that some Lilies would thrive best there. The soil we use for most Lilies consists of two parts fibrous peat, one part loam, and, if the last is at all stiff, some sharp sand is added. In this L. speciosum, longiflorum, canadense, californicum, Pardalinum, parvum, puberulum, Thunbergianum, Coridion, Hansoni, tigrinum, giganteum, and some others, flourish and increase; L. auratum, Krameri, superbum, and Leichtlinii, in some seasons. The last, from its distinctness, is a favourite here; we are trying it with more loam. Chalcedonicum, tenuifolium, Buschianum, white Martagon, &c., bloom for a time, but the bulbs waste and we lose them. L. Brownii occasionally succeeds splendidly, but is uncertain; we continue trying different soils and earlier removal to the cooler house. I will not speak of some of the rarer Lilies, such as polyphyllum, neilgherrense, and Wallichianum, for we have not mastered their treatment. You are, no doubt, often asked, as I am, the best place to get Lily bulbs. There are a good many dealers at home and abroad who have made rather a speciality of Lilies, but now that most nurserymen have many sorts of Lilies in their catalogues, I would recommend small cultivators to get their supply through the nurserymen in whom they are in the habit of placing confidence. It has been rather a hobby for some years past that my favourite flower should be more known, and take the important place in gardens it deserves to occupy, and with these objects I have given many bulbs and some suggestions in different districts through the country, and have constantly exhibited any supposed novelty before the Floral Committee at South Kensington, till I obtained the nickname of "Lily Wilson." If any of your correspondents ask you for further information, I will try to give it. My Lily certificates have just been counted—twenty-one in number; the list may be so far of public interest, as it gives the date of one sort of publication, and of the flowering in this district. All the certificates were those of the first-class, with the exception of the last, for L. Hansoni (at first supposed to be L. avenaceum); this was a second class one, but I am mistaken if this Lily does not prove as valuable and popular as it is beautiful. I may explain to the uninitiated that a first-class certificate of the Royal Horticultural Society means that the object has merit and has not previously been before the Committee.

1867. Aug. 6.—A new Lily [L. Wilsoni].
1869. July 6.—L. longiflorum [Wilsoni, Leichtlin].
1870. Aug. 3.—L. tigrinum flore pleno.
„ „ 17.—L. longiflorum albo-marginatum.
„ Sept. 7.—L. Leichtlinii.
1871. June 27.—L. puberulum.
„ „ „ —L. penduliflorum.
„ „ „ —L. californicum.
„ „ „ —L. canadense flavum.
1872. June 26.—L. Robinsoni.
„ „ „ —L. canadense flavo-rubrum.
1872. June 26.—L. canadense rubrum.
„ „ „ —L. Maxcimowiczii.
„ July 3.—L. Humboldtii.
„ „ „ —L. Martagon dalmaticum.
„ „ 17.—L. Leichlinii majus.
„ „ „ —L. tigrinum splendens.
„ „ „ —L. japonicum Takesima.
1873. „ 16.—L. Krameri.
1874. Aug. 5.—L. speciosum atro-purpureum rubrum.
1875. June 2.—L. Hansoni (second class.)

Heatherbank, Weybridge Heath.

ALPINE DAISIES.

Under this general term may be included a number of dwarf-growing Composites, to which the flora of Alpine lands is indebted for much of its beauty. The miniature flowers of the Composite order are a continual source of interest in the Alps, and frequently their leaves form a turf among which Gentians and more highly-coloured flowers grow. One of the most noticeable of these plants is the Alpine Feverfew (Chrysanthemum alpinum), a native of the Alps, a dwarf plant, hoary, and not rising more than half an inch above the surface. Its pure white flowers (more than an inch across, and with yellow centres) are produced in abundance, and are supported on hoary little stems, from 1 to 3 inches long. It deserves cultivation on rock-work, in bare level places on poor, sandy or gravelly soil. There are various other dwarf Composites of the same general aspect, and with green or silvery leaves. The Belliums or "small Daisies," are nearly allied to the common Daisy. Three kinds are in cultivation—B. bellidioides, crassifolium, and minutum, none of which are so beautiful as the common Daisy, nor so hardy. Where grown without protection in winter, they should be planted in warm sandy soil, and in sunny spots on rock-work. The Alpine Aster (A. alpinus) might be called the blue Daisy of the Alps. When in its wild state in the rich green sub-alpine pastures, it usually flowers singly, and not in strong tufts, as in gardens, and the effect is very like that of a blue Daisy. R.

Wasps and Tomatoes.—I have just gathered 70 lbs. of Tomatoes, grown at the base of Peach and Apricot walls, so that I had a fair opportunity of judging whether this fruit is effective in keeping away wasps. I believe there never was a greater delusion than that of supposing that it is so, as far as outside walls are concerned. As regards indoor walls I do not venture to offer an opinion, my experience not permitting me to do so.—R. Gilbert, *Burghley*.

The Best Late Peach.—After all other Peaches are over, we are still gathering Walburton Admirable, a Peach raised by the late Mr. Morton, of Walburton, Sussex, from a stem of Noblesse, which it very much resembles in form and colour. It is an excellent variety and very hardy.—R., *Stamford*.

NOTES OF THE WEEK.

—— Mr. Thompson, of Ipswich, has sent us specimens of a Texan Sea Holly of great beauty, and quite distinct from all other Eryngiums. It is named E. Leavenworthii, and is remarkable, not only for the rich violet colour of the heads and involucral leaves, but also for the tufts of spiny leaflets, of the same colour, which crown the flower head. It grows from 2 to 2½ feet high, the stem leaves being mostly green; but, in some cases, they are apparently disposed to assume the violet tint of the involucrum. Looked at either from a horticultural or botanical point of view it is a striking and interesting plant.

—— On Wednesday last a number of gentlemen interested in the Westminster Aquarium were invited by Mr. W. W. Robertson, to inspect the progress of the works which is in every way satisfactory, the contractors being under an engagement to hand over the building in a completed state by Christmas next. The site, which occupies two acres and a half in the Board Sanctuary and Tothill Street, was acquired by the company, at a cost of £80,000. The contract for the erection of the building, which is in the hands of Messrs Lucas, was £88,000. The glazing, which is on Rendle's plan, has a fine appearance, and answers the purpose perfectly.

—— Mr. Gumbleton, writing to us from Belgrove, says—A curious instance of floral fusion, or fasciation, occurred here recently in the case of M. Van Houtte's beautiful Begonia Emeraude. A male and a female flower, having come into contact, were fused into one immense bloom with both stamens and pistils distinctly visible in the centre, and the incipient seed-pod fully developed at the back of one of the halves of the flower. Nothing of this kind has probably been seen so perfect in all its parts before.

—— A correspondent of the "Albany Cultivator," describing fruit gardens near the village of San Leandro, California, says the country, especially that part of it which lies west of the mountains and upon the bay in Alameda County, is noted for the richness of its soil and its magnificent growth of fruits and vegetables. They tell stories of the size of these products that will hardly be believed. "Carrots grow 3 feet long, and weigh 35 lbs.; Cabbages, 75 lbs.; Onions, 5 lbs.; Water Melons, 85 lbs.; Pears, 3½ lbs.; Strawberries, 2 ozs.; Beets, 200 lbs., or 1 to 3 bushels; Apples, of the Gloria Mundi sort, 2½ lbs."

—— Large and perfectly fresh blooms of Lilium auratum are among the hardy flowers now in bloom in Hyde Park. We mention it by way of showing how long this Lily blooms throughout the summer and autumn.

—— M. H. J. Van Hulle has proposed to the members of the Pomological Congress, at Ghent, that action should be taken in all the European countries, to ascertain what Pears, to the number of fifty, are considered the best for the various months of the year. To this end M. Van Hulle, suggests that delegates in England, France, Germany, Austria, and Holland, should be appointed, whose mission would be to seek the co-operation of the various horticultural or pomological societies of their respective countries in obtaining evidence of, and entering in a form, the varieties of Pears most frequently exhibited at the various fruit shows throughout the year with the points scored by them in competition. At the end of five years, that is in 1880, the results would be made known, and the final decision respecting the relative merits of the fruit, as evidenced by the returns, would be a matter for the consideration of the Pomological Congress of 1881 to be held in Belgium.

—— Mr. James Taplin, writing to us from South Amboy, New Jersey, on the 7th ult., says — "It has been an extraordinary season here. In the middle of June, we had a severe frost, which injured Oak and Hickory shoots, and we have had continued wet weather and low temperature during most of the summer; we can, however, withstand rain here, and have never had vegetables in better condition; but Melons are not so well flavoured as usual. I measured some Onions yesterday, from seed sown on the 1st of April, and found them to be 14 inches in circumference. The new French Cannas have been very magnificent; C. Imperator, with its fine Musa-like foliage, has grown 10 feet high, and has produced splendid spikes of scarlet flowers. Musa Ensete, too, has been strikingly beautiful out of doors, every leaf being perfect. The Papyrus has been 8 feet high, and a forest of shoots. Ficus Parcelli has likewise been very fine, and its variegated fruit innumerable; but, as regards the white Lapageria, it has attracted more attention than any other plant we have had in flower this season."

—— A Peach-grower in the United States is building an immense refrigerator, in which he is going to stow away 200,000 baskets of Peaches, expecting to keep them fresh till winter.

—— Cotoneaster frigida of Northern India is now one of the best of the many showy-fruited low trees of the Hawthorn family. It has a weeping tendency, and is now full of scarlet fruit.

THE KITCHEN GARDEN.

VARIETIES OF GLOBE ARTICHOKES.

The Artichoke, like its near relation the Cardoon, is indigenous to north Africa and the south of Europe; but it has been so much altered by cultivation that it might easily be believed to be specifically different from the wild type. It is, besides, sub-divided into a large number of varieties, which differ considerably one from the other in height, foliage, and hardiness. It is scarcely necessary to say that the useful portion of the Artichoke is the flower-head, of which the fleshy scales at the base, as well as the receptacle, are eaten. Sometimes the edges of the leaves are also eaten, when cooked and seasoned like those of the Cardoon, which they resemble in flavour. The Artichoke is cultivated extensively, not only in England, but also in all parts of France—in the north as well as in the south, in the east as well as in the west; but it does not prosper equally well everywhere, and each province has its variety, to which it gives preference or which thrives better than other kinds. Amongst these varieties ought to be mentioned the large green Artichaut de Laon, the heads of which have scales more fleshy at the base than the ordinary kind, and not placed very close one to the other. This is one of the best varieties known, and one that is most commonly cultivated in the neighbourhood of Paris, especially at Aubervilliers.

The culture of the Artichoke varies somewhat according to situation and climate. In the north and midlands, it is necessary to cover it in winter with litter or leaves to protect it from frost; in the south it is sufficient to earth it up, but even this precaution is not taken everywhere. Whatever may be the climate, the Artichoke requires a deep, mellow, well-manured soil, which is not liable to become parched up during the summer heats. It is increased in two ways, by seed and by offsets. Varieties of it, however, are apt not to come true from seed, and they require, besides, more time than offsets before they are fit for consumption; the latter mode of propagation is, therefore, that most generally adopted. Near Paris the offsets are taken off in spring; in other districts the operation is deferred till autumn, as this is thought to produce better and earlier returns. The process is as follows:—After stripping off the soil from the base of the plants, without pulling them up, the suckers, which grow at the collar, are removed with a heel, or portion of the stem, attached to them; and from amongst these offsets the strongest should be chosen for planting. The soil which is destined to receive them having been well prepared and manured, the offsets should at once be planted in lines, at a distance apart of about 2 feet 6 inches each way, taking care to heap up the earth round the stalks and to water if the weather be dry. Some prefer planting in pots until the offsets have fairly rooted, after which they may be planted out with a ball. It is said that Artichokes thus treated are fit for use sooner than under the ordinary method. In all cases, if the planting has been properly conducted, a large number put in in April will be fit for use in the autumn of the same year. The old plants, from which the offsets were taken, should be allowed to remain, and, according to their strength, a few offsets should be left on them, which, during the year, will form heads; only a single offset should be left on if the plant be weak. The Artichoke likes a good supply of water, especially when the heads commence to show themselves. The sooner planting takes place in spring, the more abundant will be the harvest in autumn; if it is not proposed to gather the Artichokes until the following spring, the offsets may be planted later, say in June, July, or August. The offsets may even be taken off in autumn, as has been already stated. As soon as the Artichokes are cut, the stalks which have borne heads should be cut back to the level of the ground; in the same way the tops of the longest leaves should be cut, in order to let in sun-light to warm the soil round the plants, and then, towards the end of November, that is, before the occurrence of severe frosts, the earth should be drawn between the rows, and the stems earthed up to protect them from frost. When there is nothing further to dread from severe weather, they should be uncovered and unearthed. In spite, however, of earth protection, dry leaves, or straw, it often happens, during exceptionally severe winter, that Artichokes are destroyed by frost. French gardeners, therefore, always place within a vegetable frame or cellar, before cold weather comes on, a certain number of Artichoke plants, which are planted closely in moderately damp earth. With a certain amount of care, and attention to ventilation, the Artichokes will pass the winter without difficulty. They are re-planted in spring, and it is not unusual for them to come into use a month or six weeks earlier than those that have been allowed to remain out of doors. The cultivation of the Artichoke in southern France, or in the region of Olives, differs in many respects from the method that obtains in the north of that country, and it varies, besides, according as the soil can be irrigated or not. In Provençe, in soil that cannot thus be watered, the offsets are taken off after the first rainy weather, for it is only then that the plant, dried up by the heat of summer, commences to grow. The offsets are planted, in the first place, in a nursery, in soil that has been dug to a depth of 18 or 20 inches. Six weeks or two months afterwards the young plants are planted permanently; in the course of the winter the soil is dressed once or twice, and, if the spring is not too dry, the Artichokes may be cut in May or June. During the summer the plants dry up, but push growth again in the autumn. A thorough dressing is then given, manure is added, and the offsets are thinned out. In the following spring, that is to say, from March to May, the plantation will yield heads abundantly, and that for three or four years; but when it is exhausted it must be renewed. In irrigated soil the method of procedure is nearly the same, but the Artichokes are cut the first year. Some cultivators, under these conditions, renew their Artichokes every year, and thus utilise for other purposes the ground occupied, to no end, by the Artichokes during the summer. Throughout the warm region of the Olive—in Roussillon and in lower Provençe—Artichokes are cut during the

De Laon Artichoke.

whole of the winter—that is to say, in December, January, and February; but it is only the Violet Artichoke that is adapted to the purpose. The method of procedure (according to the "Amateur") is as follows:—In May, all the plants that have produced heads are pulled up, and the offsets, which are numerous, are taken off to be planted in a nursery in prepared soil. They are watered once or twice, and when they have thoroughly taken root they are left to themselves, without giving them any more water until July, for it is necessary to the success of the operation that the leaves should fade and wither. Towards the middle of July the plants are lifted and planted permanently in a deeply-dug and thoroughly-manured soil; they are watered copiously after planting, and, in the case of dry weather, this watering should be repeated every week. The ground should be kept clean, and dressed occasionally with pigeon-house manure. Liquid manure should also be used; in fact, every means should be taken to push forward the growth of the plants. If these operations are skilfully performed, Artichokes may be cut in November. If frosts are to be dreaded, earth up the plants, but only on that side whence the cold is expected, leaving the opposite side open to be benefited by the sun's rays; the leaves are then turned down, in the form of a cap, over the young heads, to protect them from the frost. One white frost is sufficient to destroy the whole crop if these precautions are not taken. In exposed situations, this winter culture of the Artichoke is usually carried on in beds at the foot of walls facing the south. We may remark that the Violet Artichoke, to which this culture can be applied, only gives poor and uncertain returns in the north of France. An Artichoke plantation usually fails to give returns for more than three years; in four years it is exhausted, and must be planted afresh. In England it used to be the custom, at the approach of winter, to cover the plants entirely, or nearly so, with litter, and then to bank them up with earth, in which condition they remained through the winter. It is now, however, believed that the Globe Artichoke is much hardier than was at one time supposed. In the southern and midland counties, all the protection they require is a small forkful of litter placed, in severe weather, over and round the crown of each plant, to be removed when the weather changes. Globe Artichokes are often allowed to remain too long in one spot, and, where this occurs, it has the effect of inducing a large production of heads in July, whilst, later in the season there will probably be a scarcity. The best way of managing them is to re-plant about a fourth of the whole crop every year. The crop will thus occupy fresh ground every four years. One of the principal advantages of this system of culture will be the extension of the season of bearing. The old-established plants will come into bearing first, whilst those that are transplanted in March will, in consequence of their removal, come into use much later, and, so form a desirable succession. In making new plantations strong offsets, with good roots attached to them, should be selected for re-planting, and, the ground should be in good heart and have been previously deeply-worked. They may be planted in rows, 3 feet apart in the rows, and 4 feet row from row. In very hot dry weather, they will be much benefited by being mulched with half-decayed manure, and, as the heads are cut for use, the stalks that bore them should also be removed, as they only help to exhaust the plants. There are several varieties in cultivation, but the best we have in England bears a dull purplish-coloured head, with the scales turning in at the top. In France, the home of the Artichoke, varieties are much more numerous than with us, and some of the best and hardiest of these might be advantageously introduced into this country. E.

MUSHROOM CULTURE.

No time should be lost in getting the materials together for the Mushroom beds, as this is the best time for their construction, in order that they may last through the winter months; a second set should be made in February, or March, according to circumstances. The best plan in collecting the droppings is to have a barrow or hamper under cover near the stable to shelter them from rain and empty them every day into a dry shed and spread them out. Add to the droppings (leaving the short litter in) one-third of turfy loam chopped fine and mixed well in, which makes the bed of a more natural character and produces Mushrooms of a more solid texture. Make up the bed by instalments every eight or ten days instead of exhausting the chief growing qualities of the material by drying it. The beds should be from 12 to 14 inches deep, and should be trodden as firm as possible; the firmer they are the steadier the heat and the longer it is retained. A trial stick should be put in and when the heat declines to about 75°, pieces of spawn, about 3 inches square, should be inserted from 10 to 12 inches apart and about 1 inch deep; then cover the bed with about 2 inches of good stiff loam, beat it down as firmly as possible and finish off by slightly damping the surface with water and smoothing it over with a clean spade. Again use the trial-stick to ascertain the temperature; and, if it should decline, put on some fresh litter from the stable, or some hay, to retain a uniform heat and thus keep the spawn in action till it has run well into the bed; when this has been accomplished a good crop may always be depended upon. Avoid violent heat, as it destroys the spawn, and invariably keep the beds covered with litter or hay so that uniformity in both heat and moisture may be maintained and the bed may continue longer in bearing. When the bed has been in bearing for a time and begins to show signs of exhaustion, carefully remove the litter and give a good watering with manure-water made of sheep or cow dung, and used at a temperature of 80°, re-placing the litter when the operation is complete. This invigorates the spawn and produces a second crop almost equal to the first. James Smith.

Waterdale.

TREES TOO NEAR KITCHEN GARDENS.

In laying out and planting new gardens there is often a want of forethought as to the effect produced on the inmates of the garden by fully developed trees outside the walls. The occupants of the kitchen garden frequently suffer, both from lofty trees obstructing the light when planted on the south side of the garden, and from the roots of gross-feeding varieties finding their way under the walls and robbing the fruit tree borders, and that often to a serious extent before the real cause of the mischief is discovered. The evil may not be apparent for many years after planting; but when the trees outside have attained large dimensions, the mischief must either be put up with or the trees cut down. The result is, that in most cases the useful is sacrificed to the ornamental. We have here some extremely tall Silver Firs which, although a considerable distance from the forcing houses, effectually intercept every ray of sunshine in winter, when it is so much needed to assist early forcing. But this is a slight evil compared with that which results from the roots having access to fruit-tree borders, where planting close up to screen the walls is practised, and where such trees and shrubs as Firs, Yews, and Laurels are used. When the roots once get hold of the rich soil in such borders, they soon impoverish it, leaving but little nourishment for either fruit trees or vegetables. My impression is that a better method of shutting out and screening walls, where their presence is an eyesore, would be to clothe them with a judicious mixture of flowering, foliage, and berry-bearing creepers. Periods of drought strikingly illustrate the effects of tree roots on garden crops; at such times their languishing appearance near strong-growing trees soon indicate that the roots of the latter have penetrated the borders. James Groom.

Henham, Suffolk.

Black Slugs.—Can any of your readers instruct me how to destroy, without injury to plants, the myriads of small black slugs which infest my garden? Their numbers are legion, and many are so small as to be almost invisible to the eye, especially in the dark soil. If a Peach or a Nectarine fall to the ground it is immediately attacked by these pests. No doubt I could destroy them with salt or salt and water, but not without injury to the plants and trees growing on the borders. The soil of my garden is what is called rather heavy, cold, and tenacious.—An Amateur.

Cooking the Early Rose Potato.—I should advise "E. T." (p. 144) not to cook these Potatoes at all, but to give them raw to a pig or a cow. Everyone who has grown them—at least, about here—holds the same opinion respecting them as I do, viz., that they are quite unfit for human food. The variety certainly yields extraordinary crops, but the flavour reminds one of the smell of clay and yellow soap, a fact which is not likely to conduce to its popularity at the table. I am informed, however, that when grown in almost pure sand its quality is much improved; but I cannot vouch for the fact. What I do know is that I have a very large quantity of it on hand, and, not having a pig, I do not know how to get rid of it.—F. Williams, *Ormskirk*.

The Bountiful Potato.—I have found this variety fail completely. It came up badly; it had the "curl" in a more aggravated form than any other variety I had growing in the quarter; the crop was limited, and the tubers very small, though in good soil; and, finally, the disease has attacked it with great virulence, more than three-parts of the crop becoming totally rotten. I found the Upwards and Onwards Potato equally useless some few years since in another part of the country, and, after a fair trial, I gave up growing it. I may add that Early Vermont is a Potato that is likely to be wanted largely; it is a good cropper, and I have taken it up almost entirely free from disease. It resembles the English Potatoes more than any other American variety that I have grown.—J. Taylor, *Hardwicke Grange*.

Value of Road Dust.—During the dry season of late summer, every country resident should secure several barrels of road dust. It is worth many times its cost as an absorbent. Those who keep poultry may secure by its use a valuable fertiliser, nearly as strong as guano, with none of its disagreeable odour. Place an inch or two of road dust in the bottom of a barrel; then, as the poultry house is regularly cleaned, deposit a layer an inch thick of the cleanings, and so on with alternate layers of each till the barrel is full. The thinner each layer is, the more perfect will be the intermixture of the ingredients. If the soil of which the road dust is made is clayey, the layers of each may be of equal thickness; if sandy, the dust should be at least twice as thick as the layer of droppings. Old barrels of any kind may be used for this purpose; but if previously soaked with crude petroleum or coated with gas tar, they will last many years. If the contents are pounded on a floor into fine powder before applying, the fertiliser may be sown from a drill.—"Cultivator."

Aspinwall's Potato Planter.—This machine had great success at the recent show of the Royal Agricultural Society of England. The "Field" speaks of it in the following terms:—"The great novelty of the show was L. A. Aspinwall's Potato planter, an American invention, the exhibitor hailing from 449, Strand, London, and Albany, New York. A small seed box carries in the centre a disc wheel furnished with seven teeth, each of which has a sharp needle point, and, as they revolve, come in contact with the seed, carrying it round to the front, and discharging it. A double mould-board prepares a furrow, and a board on each side covers up the seed. The Potatoes are brought up to the needle by the action of a spring bottom to the seed box which prevents the seed escaping. The judges had this ingenious invention into the field, and gave it a careful trial. The seed used were small kidneys, and not a single miss was recorded; consequently a silver medal was very properly awarded. The same inventor exhibited a Potato digger; but as no crop could be found sufficiently grown to afford a test, the judges were unable to form an opinion of its merits. A broad share in front is intended to go under the tubers, and the latter are lifted backwards by a set of revolving forks on to a series of discs, and thus the dirt, &c., is separated, and the Potatoes are left behind on the top. The planter costs £10 and the digger £4."

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

Weeds.—These can be killed and prevented from growing in garden paths by watering the ground with a weak solution of carbolic acid, 1 part pure crystallised acid to 2,000 parts water. Sprinkle from a watering pot.—S. A.

Frozen Potatoes.—Experiments in Germany on frozen Potatoes prove that the freezing in nowise alters the chemical composition of the tubers. The change is simply physical, and, even if frozen hard, they are still fit for distillation, or they may be pressed to get rid of the water, and then ground into a very good meal adapted for feeding cattle.

Autumn-sown Brussels Sprouts.—Wherever green vegetables are much in demand, both in and out of season, early Brussels Sprouts will be appreciated, even when good Cauliflowers are plentiful. A pinch of seed sown now, and treated generously, will come in very early in the autumn of next year. Of course this will not render unnecessary the usual spring sowing.—E. Hobday, *Ramsey Abbey*.

A Large Tomato.—I have sent you a Tomato—one of a strain I have been growing for two years, selected from a batch sown three years since.—F. Jackson, *Casewick Gardens, Stamford*. [The Tomato sent weighed 14 ozs., and was a round evenly-grown fruit. Whether its remarkable size is owing to extra good cultivation, or is its usual character under ordinary cultivation, we cannot say.]

FRUIT GROWING AT CHILWELL.

Few places possess greater interest for horticulturists than Chilwell, for not only are well-known fruits and flowers well and extensively grown there, but new and improved ones are annually produced in considerable numbers. As regards new Grapes, Chilwell stands in the first rank, and the condition of every variety is much above the average. A house, 100 feet long, and 24 feet wide, is entirely filled with Vines in fruit. Muscat Hamburgh does well here; it is one of the proprietor's favourite varieties, and has never failed with him when grafted on the Black Hamburgh. This is the stock which appears most suitable for it; but, even on this, it has, elsewhere, often been known to fail. Its bunches this season are remarkably fine, many of them being 4 lbs. in weight, with berries equally swelled and beautifully coloured. The bunches of the common Black Hamburgh and of the Frankenthal are heavier, and more perfectly finished than usual. Madresfield Court does well until it is nearly ripe, when some of the berries, and often the entire bunch, decay—a great fault, for it is not pleasant to eat Grapes before they are ripe, nor is it always convenient to eat them the moment they are so. Black Alicante is bearing an enormous crop at Chilwell, the large clusters being composed of finely-swelled berries, jet black in colour, and heavily coated with a splendid bloom. Buckland's Sweetwater was finer than I have ever before seen it. This is an early white variety which generally produces a crop, which, in size of bunch and berry, resembles the Black Hamburgh. It is not a favourite with some Grape growers, but for what reason is not easily understood, if it always thrives as it does at Chilwell. Mrs. Pince, like the other kinds, is heavily cropped and looks well. The bunches are large and the berries even in size, showing that the process of setting must have been perfectly accomplished. The bunches of this useful late Black Muscat are in many instances composed of numerous small and a few large berries, but the whole may be obtained of equal size by drawing the hand down over the bunch while it is newly in bloom. The Grizzly and White Frontignans, were bearing heavy crops; the bunches were large for these varieties, and the berries were also of proportionate size. Golden Hamburgh is not much cultivated, as at Chilwell it is not considered to grow well, unless under very high cultivation, when the returns which it gives are not commensurate with the care which it requires.

Seedling Vines.

For a number of years many Vines have been raised at these nurseries from seed saved from bunches judiciously hybridised. One of Mr. Pearson's oldest seedlings in commerce is Ferdinand de Lesseps, a very prolific and quite distinct variety, with berries of a beautiful golden colour, which, when quite ripe, emit a delicious Strawberry-like odour, and are finely flavoured. I do not think the agreeable peculiarities of this Grape are so well known as they should be, or it would probably be more generally grown than it is. Dr. Hogg is another seedling of considerable merit, which, in flavour, is nearly equal to the Duchess of Buccleuch, to which it is closely related. The berries are light-coloured, and larger than those of the White Frontignan, and the bunches are larger than those of the latter variety. Whatever interest may be attached to these, and however valuable they may be, they are, nevertheless, inferior to the seedling Golden Queen, which is undoubtedly the very finest Grape that has ever been raised in this establishment, and it certainly seems almost faultless; there is not a Grape of any kind whatever at Chilwell to equal it. It is the result of a cross between Ferdinand de Lesseps and Black Alicante, which are both free-growing, free-fruiting, and good-constitutioned sorts, and Golden Queen has inherited all the vigour and other good qualities of the two. The leaves are like those of the Fig in texture, and the wood is firm and short-jointed; it has fruited for four seasons. This year's crop consists of sixteen fine bunches, averaging from 2 to 4 lbs. each in weight; the colour, when ripe, is intense golden, with a very rich, sweet flavour. It retains all its qualities until the buds begin to burst in spring. The house in which the seedlings are fruited is 100 feet long by 15 feet in width. Another fine variety in this house is named Mrs. Pearson, and much resembles Golden Queen in quality and general appearance, but the flavour is different, as Mrs. Pearson tastes strongly of that finely-flavoured Grape, the White Frontignan. Chilwell Alicante is another seedling which has fruited satisfactorily for some years. It looks very like the Black Alicante, but has not been considered sufficiently distinct to be sent out as a new variety. Common varieties are planted here and there in the same house; and, amongst these, Gros Guillaume and Muscat of Alexandria are bearing splendid crops, the former being remarkable for the size of the bunches and berries and the latter for the unusual compactness of its large handsome clusters. Among seedlings not yet in fruit are some between Gros Colman and Muscat Hamburgh, a cross which is expected to produce a good variety, the size of berry coming from the former and fine flavour from the latter. Muscat of Alexandria is crossed with Golden Queen, but the chance of improvement here is not so great as in the case of the cross between Golden Champion and Golden Queen.

Young Vines.

Much attention is devoted to the cultivation of young Vines, which fill six large houses, two of them being each 100 feet long by 30 feet broad, and containing good fruiting pot Vines. The other houses are chiefly filled with canes for planting out, most of which are stopped at a height of 8 feet from the pot. The fruiting canes in this house are finely grown, and should bear some very good bunches next year. Those being sold for planting appear in excellent condition for the purpose. Black Hamburghs are the principal ones among the fruiting Vines. Every variety of any importance is grown in quantity, and each seems to vie with the other in substantial vigour. No bottom-heat is used here, and the whole are so arranged that there is no over-crowding.

Peaches and Nectarines.

These are the principal inmates of the orchard-house for which Chilwell has always borne a deservedly high character. Some of them are planted out in beds, but most of them are grown in pots; under both systems, however, the trees are in excellent condition, every one of them having produced full crops this season. Those planted out are chiefly standards, with stems about 6 feet high, surmounted with large heads. In the same house there is also a large number of small trees in 12 and 14-inch pots, which are loaded with fruit, larger and finer in every respect than is often produced on large trees in their prime. Hale's Early is at Chilwell considered the best of all early Peaches; French Galande or Bellegarde is another which is also held in high repute, and Barrington has also proved here to be a heavy bearer. Early York and Early Beatrice are both good early varieties, but the latter is not super-excellent in other respects. Grimwood's Royal George or Grosse Mignonne is a grand Peach in every way, and the same may be said of Noblesse, and Princess of Wales. Walburton Admirable, is here held to be the finest late variety. Many others have been tried but these have proved themselves to be the best. Good Nectarines are not so numerous; Pitmaston Orange, Elruge, Violette Hâtive, Victoria, and Albert, are the principal kinds; the fruit on these was of a fine description, and the crop all that could be desired. The small trees with their freight of ripe fruit looked unusually well, and it is a pity they are not more often grown in the same style.

Apricots, Plums, and Mulberries.

Apricots are grown in quantity as standards in pots. The true Moorpark and Oullin's Early are the best in cultivation and the only sorts grown. Their produce in number was quite equal to that of the Peaches, every tree having a full crop, and this is not always the case with them when planted out. The flavour of the fruit was exquisite, especially that of Oullin's Early, which, though not so large in the fruit as Moor Park, is at least quite equal to it in flavour and is remarkably early. Standard and dwarf Plums were bearing fine crops, the Plum making a very fine-looking orchard-house tree. The varieties grown are chiefly those which do not succeed particularly well outside. There is, however, no kind which fails here, in any way, under glass. Coe's Golden Drop was exceedingly good, and so were Jefferson's varieties, and also Reine Claude de Bavay, Pond's Seedling, and Rivers's Early Prolific. The Plum requires no particular treatment when grown in the orchard-house. It thrives in the same kind of soil as the Peach, watering and pinching the young shoots being all the attention it demands in the growing season. The Mulberries here, on a number of fine healthy standard trees, which were placed here and there among the fruit trees already mentioned, were unusually fine. Every one of them was loaded with highly-coloured fruit, the flavour of which was unexceptionable. Unless in remarkably good seasons, the Mulberry does not do well in many outside situations; but, grown under glass, it will do perfectly in any part of the country. The fruit is very valuable for dessert, and there can be no doubt it would more than compensate for the trouble taken to bring it to perfection, either planted out or grown in pots under glass.

Figs.

The back wall of a lean-to house, 100 feet long, is covered with Fig trees, that are bearing well. Besides these, many are fruited in pots, and large quantities of young ones are grown for sale. The second crop is always heavier than the first, as many of the latter drop off. The best varieties are, De la Madeleine, yellow, pink flesh, early; Grosse Verte, pale yellow, bright red flesh, late; Brunswick, same colour, fruit large; Bourjassotte Grise, brownish-white, flesh red, with very fine flavour; Brown Turkey, an immense bearer, that ripens a heavier first crop than any other variety. Many more kinds are grown that may be considered highly useful, and amongst these are Castle Kennedy, White Marseilles, Datte, Brown Ischia, Black Providence, Violette de Bordeaux, and others. There is only one fault to be found with the way in which the Figs are grown, and that is, allowing the wood to grow for a number of feet before pinching or stopping it. In a short time, under this system, the fruit is produced only at the extremes of long naked stems, the centre of the tree being completely bare, whereas, by repeatedly stopping the shoots at 3 or 4 inches, spurs are produced which bear fruit over the entire tree, and a better effect is secured at the same time.

Plants.

This department, so far as regards hard-wooded stove and greenhouse subjects, is not so perfect as the fruit houses; the collection of young Camellias is, however, an extensive and very excellent one; all are growing in pure loam, and they seem to thrive better in this than in peat and other ingredients. Mathotiana alba, candidissima, Comtessa Lavinia Maggi, fimbriata, Incarnata, Mrs. Abbey Wilder, Princess Clotilde, and Il Cygno, are among the best white-flowering varieties, but every other kind worth cultivating is grown in quantity. The stock of young Indian Azaleas is a fine one, and I never saw a larger number of small plants of Lapageria rosea together, many hundreds of them having been raised here from seed. The rest of the plants consist chiefly of Allamandas, Begonias, Clerodendrons, Cypripediums, Epiphyllums, Eucharises, Stephanotis, Gardenias, and Ferns, in great variety. There is one circumstance noticeable in these plants, indeed, throughout the whole establishment, that is worth mentioning—there is not a single mealy bug to be seen, nor has there been for years, an immunity rarely enjoyed where Stephanotis and Gardenias are grown.

Pelargoniums.

The Chilwell Pelargoniums are now becoming well known for their excellent qualities. The proprietor has devoted much attention to their improvement lately, and many of his newest productions are amongst the finest in cultivation. It is highly gratifying to see the old and universal favourite plant—the Pelargonium—made to produce such beautiful flowers, and, so far as the cultivation of the new ones is concerned, they are quite as easily cultivated as any old common variety. They are bedded out, grown in windows, grown in houses, and in each position they appear to succeed. Every variety which has been sent out from Chilwell is good, but many of the new ones are great improvements on older varieties. The pink, rose, scarlet, red, crimson, and other intervening shades of colour, are intensely rich, and the beautiful colours are not more remarkable than the size of the individual blooms and of the trusses. Amongst other kinds, which are now well known, the Rev. T. F. Fenn is a superb crimson for bedding or pot-culture; Dell, Chunder Sen, Mrs. Hetley, and Corsair are good scarlets; Miss Blanche Story, Lady Belper, Mrs. Holden, Mrs. Turner, Mrs. Gibbons, and Amaranthe, fine pinks; Lawrence Heywood, Mrs. Hole, and Arthur Pearson, magenta. Other fine colours are H. R. Clifton, Laura Walter, Thomas Adams, General Outram, Metcalf, and Colonel Holden. Many more of considerable merit might be named, but they are not likely to be much sought after, as those to be sent out for the first time next spring comprise all the former colours, and a number of new shades; while, as regards size of truss and bloom, and richness of hue, they are superior to the older favourites. First and foremost among the latest improved kinds is a scarlet-crimson variety, named David Thomson, a variety with large trusses of singularly rich and perfectly-arranged blooms. This variety will be most useful for bedding purposes, and for growing in pots. Few Pinks will surpass either Lady Zetland or Lady Sheffield, both of which are perfect. Lord Zetland, Havelock, and Wordsworth are magnificent scarlets. Miss Burnside (red-pink), Mary Pearson (dark rose), E. Davis (crimson, shaded with purple), Mrs. Gregory (bright rose), and Captain Holden (dark rose), are all unmistakably fine varieties.

Trees and Shrubs.

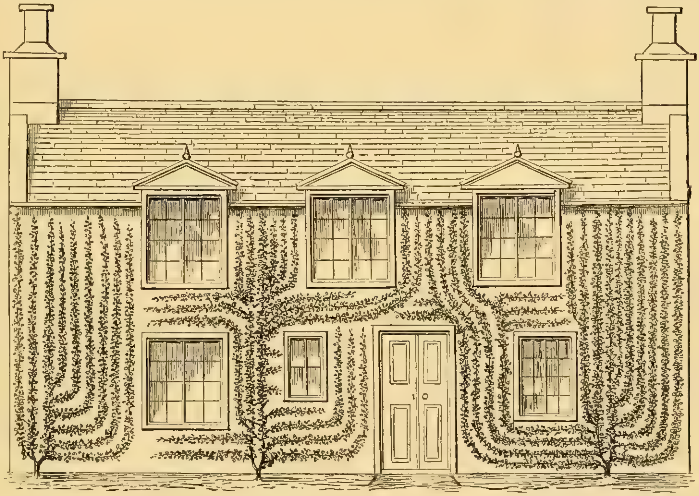
Much might be written about the young and healthy ornamental shrubs which luxuriate in the fine loam at Chilwell. They consist chiefly of Araucarias, Aucubas, Arbor-vitæs, Berberries, Cedars, Hollies, Junipers, Kalmias, Laurustinuses, Lilacs, Mahonias, Magnolias, Pines in great variety, Rhododendrons, Thujopsis, Wellingtonias, Retinosporas, Yews, &c. It has been found preferable to plant these subjects in spring, the whole stock being lifted and re-planted annually. This is a great advantage when the trees are removed from the nurseries altogether, as they lift with small, closely-packed balls of short fibrous roots, which start into growth at once, wherever they are planted, without giving the plant the slightest check. I must not forget to mention that Cucumbers are very extensively grown here for seed. The only variety used is Long Gun, or what is generally known as Pearson's Long Gun. It is a very handsome, prolific, and well-flavoured Cucumber, coming in between April and November.

M.

Giant Knotweed (p. 261).—I would advise "Oxon" not to displace Polygonum cuspidatum (or Sieboldii) for P. sachalinense. I have flowered both and can say that P. sachalinense is a coarse and inelegant plant compared with P. cuspidatum. This last grows here about 12 feet high in good seasons, and is a most elegant lawn plant; if grown on the bare Grass and mown up to each time of mowing, it is easily prevented from getting too rampant.—H. N. Ellacombe, *Bitton Vicarage, Bristol.*

UTILISATION OF WASTE WALLS.

Amongst situations adapted to the culture and training of fruit trees, but which are too often overlooked and left unutilised, are the gable ends and other walls of cottages, outhouses, and similar buildings, having overhanging roofs and aspects which would render the production of excellent wall fruit a matter of ease and certainty. Gable walls especially are often found under conditions peculiarly suited to fruit culture; and, if covered with well chosen varieties, would yield good returns. Trained under over-hanging roofs, the trees are not damaged by rain water; and it often happens that the soil about buildings is suitable for fruit tree culture, owing to its being unexhausted, and to its having been thoroughly broken up in laying the foundations. Fruits in open quarters, exposed to all kinds of weather, are subject to accident. Quantities of fruit, for instance, have been blown down in the midland counties this week, and many old trees have been damaged by the strong gales to which they have been subjected. For the next few weeks, therefore, Pears, Apples, and Plums will be cheap. We are informed by Mr. Saul, of Stourton Park, that on the 22nd ult. it was estimated that there were about 80 tons of fruit in the Knaresborough market. The average price for Apricots on walls during the past season has been about 2s. 3d. per score, and two good trees ought to carry thirty score. These, if fine, even in a plentiful year, would realise 2s. per score, and this season, at the commencement, 2s. 6d., which would give a total of £3 15s. But this sum is not always made, as it is rather unusual to see two good trees on a cottage; then the trees are not always properly attended to. A cottager, however, has been known to realise, after making use of what fruit he wanted, £1 for the fruit of a small standard Victoria Plum. Nevertheless, cottage walls are not utilised as they ought to be; although most of the farmers in the midland counties do plant trees against the walls of their dwelling-houses, barns, and other outhouses. Jargonelle Pears, Victoria, Kirke's, and Jefferson Plums, and Apricots, are the kinds of fruit they in general prefer, and the samples of fruit which they produce are often very fine specimens of their respective kinds. Indeed, there is no subject deserving of greater attention than that of turning every foot of waste wall to a profitable account. People have long recognised the necessity of cultivating waste lands with the view of increasing our food supplies; on the same principle, a profitable use should be made of all spare wall space by planting it with different sorts of fruit trees. All that is necessary is to choose the right kind of trees and to plant them properly. If this were done it would not be difficult for a cottager in a country place, where rents are low, to pay the greater part of his rent from money made of a couple of trees growing against his cottage. Not a few industrious men have done this by means of a Moorpark Apricot or a Victoria Plum grown in such situations, but such cases are by no means so common as they should be.



Training Trees on Cottage Walls.

The two fruits just named are as good as any that could be planted for profit. Mr. Culverwell, of Thorpe Perrow, informs us that a cottager near Bedale frequently made from £2 to £3 in a season by the sale of Apricots. Trees on cottages are rarely injured by frost, the heat within and the projecting roof preventing such disasters. A Victoria Plum tree, after having been planted five years, has been known to produce one pound's worth of fruit, besides a portion for the owner's own use. Two Pear trees, both growing on the gable ends of two cottages, have borne wonderful crops this year; one a Marie Louise, was planted about seven years' ago by a labouring man. For the first four years this tree grew so rapidly that it had to be root-pruned, and the result was a fine crop of fruit the following year; this season the tree has produced ten dozen of very fine fruits, which will nearly pay half-a-year's rent of the cottage on which the tree is growing. The other tree, belonging to a well-to-do joiner, has three or four sorts grafted on it, but the principal part is Louise Bonne of Jersey, of which very heavy crops are obtained every year. It is planted at the back of a fire-place, and follows the course of the chimney, covering a large space on each side of it. Mistakes are often made by planting wrong sorts of Pears. Cottagers, as a rule, plant early kinds, which are of little value in the market. If Apricots are planted, the variety should be the Moorpark. Of Pears there is more choice; they could not be wrong in planting any of the following, viz., Marie Louise, Louise Bonne of Jersey, Beurré Diel, or Winter Nélis. Another fine large autumn Pear, well suited for a wall in the midland counties, is Beurré d'Amanlis. Among Plums there are many good sorts, but, for profit, cottagers should grow the Victoria and the yellow Magnum Bonum; both are good bearers, and command a ready sale. V.

THE VALE OF CASHMERE.

Here, at a height of nearly 6,000 feet, in a temperate climate, with abundance of moisture, and yet protected by lofty mountains from the fierce continuous rains of the Indian south-west monsoon, we have the most splendid amphitheatre in the world. A flat oval valley, about 60 miles long, and from 40 in breadth, is surrounded by magnificent mountains, which, during the greater part of the year, are covered more than half way down with snow, and present vast upland beds of pure snow. This valley has fine lakes, is intersected with water-courses, and its land is covered with brilliant vegetation, including gigantic trees of the richest foliage. And out of this great central valley there rise innumerable long, picturesque mountain valleys, such as that of Sind River, while above these there are great Pine forests, green slopes of Grass, glaciers, and snow. Nothing could express the effects better than Moore's famous lines on sainted Lebanon:

> Whose head in wint'ry grandeur towers,
> And whitens with eternal sleet;
> While summer in a vale of flowers
> Is sleeping rosy at his feet.

The great encircling walks of rocks and snow contrast grandly with the soft beauty of the green beneath. The snows have a wonderful effect as we look up to them through the leafy branches of the immense Chunar, Elm, and Poplar trees. They flash gloriously in the morning sunlight above the pink mist of the valley plain; they have a rosy glow in the evening sunlight; and when the sunlight has departed, and darkness shrouds them, they gleam afar off, with a cold and spectral light, as if they belonged to a region where man had never trod. The deep black gorges in the mountains have a mysterious look. The sun lights up some softer grassy ravine or green slope, and then displays splintered rocks rising in the wildest confusion. Often long lines of white clouds lie along the line of mountain summits, while at other times every white peat and precipice wall is distinctly marked against the deep blue sky. The valley plain is especially striking in clear mornings and evenings, when it lies partly in golden sunlight, partly in the shadows of its great hills. The green mosaic of the level land is intersected by many streams, canals and lakes, or beautiful reaches of river, which look like small lakes. The lakes have floating islands composed of vegetation. Besides the immense Chunars and Elms, and the long lines of stately Poplars, a great part of the plains is a garden filled with fruits and flowers, and there is almost constant verdure. It is a pity that so beautiful a country should not have a finer population. At the entrances of the valleys, looking at the forests, the rich uncultivated lands, and the unused water power, I could not but think of scenes in England. My mind reverted also to the American Sierra Nevada, the Oaks and rich fields of Wheat, the chubby children, the comely, well-dressed women, and the strong, stalwart men of California. For, though the chalets were picturesque enough at a little distance, they could not bear a close examination; and there was not much satisfaction to be had in contemplating the half-starved, half-naked children, and the thin, worn-out looking women. One could not help thinking of the comfortable homes which an Anglo-Saxon population would rear in such a land.—"Blackwood's Magazine."

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Chrysanthemums are generally late in setting their flowers this season. As soon as the buds are sufficiently large to handle, the whole of the plants should be gone over and thinned, reducing the number more in the large varieties than in the case of small-flowered kinds, as the latter can mature a proportionately greater quantity of blooms. In all cases, it is better to thin out considerably more than is generally the practice; not only are the individual flowers finer when so treated, but they last much longer. From this time they should be fed with liquid manure alternately with clean water when they require moisture, and they will bear it as strong as any plant in existence. The majority of those who grow Chrysanthemums never obtain fine flowers, nor leaves that keep the dark green colour they are capable of assuming, simply because they do not give the plants sufficient liquid manures. Autumn Veronicas, such as Andersoni and salicifolia, are fine flowering greenhouse plants, and answer best when planted out in summer and at this time lifted and put in pots. The latter need not be of a larger size than is necessary to just hold the roots without too much pressure to get them in. The pots must be well drained, as they need a plentiful supply of water all through the flowering season. As soon as they are potted they must be thoroughly soaked with water, and the soil should never be allowed to become at all dry, or they will flag, which will cause the young advancing flowers to die off. They should be carefully shaded for a fortnight, until the roots begin to grow. The varieties of Solanum, Pseudo-Capsicum, and Capsicastrum, that have been planted out for the summer, and are so useful as decorative plants from the abundance of bright red berries they bear through the winter, should now be potted in the same way as the Veronicas, and in other respects treated as before advised for them. If there is any deficiency of Chrysanthemums that have been grown in pots, any that were planted out in the spring, may, now that the flowers are set, be lifted and placed in pots, abundance of water being given until they have taken hold of the new soil. Amateurs may not, in the case of these plants, be able to understand the reason of advocating the use of so much water immediately after potting, which is quite contrary to the advice generally given in the management of most subjects when newly potted, viz., to withhold water as long as possible without allowing the soil to become over dry. The reason is, that they are remarkably vigorous and free-rooting, otherwise they could not bear to have their roots disturbed in the manner indicated; and, at the same time, they naturally require a great deal of water. If the majority of plants usually grown in pots were subjected to such usage, especially in the quantity of water given, they would assuredly die. This is simply a proof of the wholly different treatment required to ensure success in the cultivation of pot plants. Deciduous trees, that have been planted amongst shrubs and near boundary fences, to give effect until other plants grow up, are too often allowed to remain, to the serious injury of such as were intended as permanent occupants, and thus defeat the object in view; when any of these exist they should be removed, even if not required elsewhere, and, if again planted, ground should at once be prepared for them, so that they may be moved as soon as the leaves have fallen. Camellias that have been placed out of doors after the buds have set, should not be allowed to remain out when there is danger of frost at night, as it generally has the effect of injuring the bloom-buds, especially of such as are early. Do not crowd them together when taken in, for it is better to give enough room to a few than attempt to grow more than sufficient space can be found for.

Gathering Apples and Pears.—Many of the late-keeping Pears and Apples will now be approaching maturity, and should be gathered. Amateurs are often at a loss to know when these fruits are fit to gather. It is not well to remove the keeping varieties of Pears too soon, as their quality is not injured by remaining on the trees, as happens with some of the early kinds, such as Williams's Bon Chrétien, which, if left on too long, is afterwards dry and insipid, instead of juicy and mellow. If the late kinds of fruit are gathered too soon, they always shrivel, do not ripen well, and are deficient in flavour. The time of ripening is materially affected by different soils and seasons, so much so that it is impossible to give a date for any particular kind being fit to gather. A safe course to follow is to allow them to remain until they part from the tree easily. If any considerable force has to be used to remove them, it is evident they are not ready. In gathering Pears there is seldom sufficient forethought exercised in the way they are handled. With good-keeping varieties, the utmost care should be taken not to allow them to come in contact with anything that will injure them; for, although they may not at the time show any bruises on the rind, if there is the slightest injury underneath, decay at once will set in, though it may not be apparent for some time. Apples, owing to their harder texture, are not so easily injured; but the length of time they will keep is often much reduced by the rough usage they are subjected to. In many places, even where keeping Apples and Pears are largely grown, too little attention is paid to the room where they are stored, any sort of place from which frost can be excluded being thought good enough, and the keeping capabilities of the fruit, as well as its quality, are thus much impaired. The extremes which make a fruit room unfit are either too great a degree of dryness or of damp. The former produces shrivelling through excessive evaporation, and induces premature ripening; that is, the fruit comes in before the proper season. On the other hand, too much moisture will destroy the flavour of even the best varieties. Rooms on a second story are almost always too dry, as also such that are lower, if the floor is boarded, with the usual air drains underneath. Nothing equals a room on the ground level, with a paved or tiled floor laid absolutely on the earth, sufficient ventilation being given in the roof to allow the considerable amount of moisture, that a large body of newly-gathered fruit throws off, to escape, but no through draughts should be allowed. The best keeping fruit-room I have ever met with was a well-ventilated cellar in a dry sandy situation; here Ne Plus Meuris Pears were plump and well-flavoured up to June. The shelves and drawers should always be made of hard scentless wood, sufficiently exposed to the air before being used; resinous wood, so long as it retains a smell, will affect the flavour of any fruit it is near. If anything is used between the fruit and the bare boards it should be clean Wheat straw. Any material that absorbs moisture will turn mouldy, and should be studiously avoided. Warmth, greater than what is required to exclude frost, will hasten the ripening process, and so far shorten the length of time during which the fruit will keep. Better than at any time keeping the whole stock too warm is to move a portion of a variety to some place where it can be kept warm enough to hasten ripening. The best keeping kinds should be laid thinly on the shelves.

Herbs.—If sufficient herbs were not cut for drying earlier in the season more should be secured before the approach of cold autumn weather; this more particularly refers to such subjects as Sage and Thyme. Lay them loosely where they will be fully exposed to light and air until quite dry. A quantity of Parsley should also now be gathered and similarly treated; it ought to be dried quickly or it will spoil. If it can be placed near a warm flue this will answer well. A good supply should always be thus provided, as, for many purposes, it can be used in place of fresh material in severe winters.

Tomatoes.—Any fruit of Tomatoes in the open air that has begun to colour should now be gathered and placed on a dry shelf near the glass in a greenhouse or similar situation, where it will be exposed to the full influence of the sun, and will soon ripen and be fit for use; the quality of Tomatoes is better when they are fully ripened on the plant; but, after this time, it is not safe to leave them out on account of danger from frost. The plants may be allowed to remain longer if they have yet a considerable quantity of growing fruit upon them; for, although they do not grow so fast after this time, yet, if the weather keeps fine, they will get to a useful size. A mat may be hung over them at night if danger from a low temperature is apprehended. When they have ceased to make further progress pull the plants up by the roots and hang them up, the heads downwards, in a greenhouse or empty Vinery, where the fruit will ripen. When so treated they should not be tied up in large bunches or the leaves will turn damp and mouldy, which will prevent the fruit becoming fit for use.

Mushroom Beds.—Beds recently made should now be examined in order to ascertain whether or not they are fit for spawning. Manure for successional beds should be prepared, as, from this time to the end of the year, Mushrooms can be grown more successfully than at any other season, especially by amateurs who may not have a regular house for them.

Roses.

If new plantations are required for next season, the ground should be selected and well trenched, using plenty of manure. If the soil be clayey and loam is not obtainable, trench in plenty of road grit and horse droppings with some old lime rubbish, and Roses will be found to succeed well, without removing all the clay; but if the sub-soil is sandy and gravelly, it is advisable to use some clay mixed with the soil, as the gravel draws all the moisture out of surface soils, while the clay retains it longer than any other sub-soil. All heavy soils should be drained, the drains being about 4 feet deep and 7 yards apart; these will be sufficient to take off all stagnant water in garden soils. The surface water will penetrate much quicker when well drained, and plants will thrive much better in well-drained ground. In order to grow Roses sufficiently robust to form pyramids or Rose bowers preparation should be made for them as for making Vine borders. If the ground is well prepared the Roses will compensate for all the trouble expended on it the first season. The soil does not require to be trenched beyond the depth of 2 feet, and should be prepared at once, for Roses may be transplanted in another fortnight, and the earlier they are got into the ground the greater the certainty of a fine display the following season. Where it is necessary to plant wet marshy lands with Roses, it is best to raise up a small mound of earth above the surface, on which the Briar stock will be found to grow well; but Roses on their own roots do not do well in damp or clayey soils. The Manetti requires lighter and more porous soils than the Briar stock, and it is well to bear this in mind in selecting the stock, which should be adapted to the soil in which it is grown. The Briar is generally recommended for every kind of soil; it will grow on banks, copses, and in the open; and, as a stock for Roses for general use for decorative purposes, should, in my opinion, be always selected. The Manetti stock, and Roses on their own roots, are the best for bedding or cordons, as they are worked closer to the ground than Briar stocks. Roses for exhibition should be grown on one year's "worked" plants, on Briar or Manetti stocks. Where Roses are to be removed from the open ground for growing in pots, the present is the best time to pot them. Prepare some good loam and rotten dung, using a small quantity of crushed bones and mix the soil with good sharp sand; pot firmly, place them under a north wall for a fortnight, till they have become established, and then plunge in leaves, old tan, or ashes, and they will yield some good flowers the following April or May. They will not stand forcing too hard when taken up the same autumn as plants grown in pots altogether for forcing, but a fair quantity of cut blooms can be got from Roses lifted in the autumn.—H. G.

The Flower Garden and Pleasure Ground.

The dry weather which we have had has been severely felt on light soils, and beds of Pelargoniums of all kinds, as well as other bedding plants, have suffered in consequence; but Calceolarias, Verbenas, &c., as well as fine-foliaged plants of various kinds, still possess considerable beauty, and, if well supplied with water, so as to keep down red spider and thrips, which in bright dry weather soon disfigure such plants and render them unhealthy, they will have a good appearance for some time to come. As cold weather may now, however, at any time be expected, it will be advisable to make preparation for the lifting and re-potting of some of the more tender kinds of plants, whether with a view to using them again as bedding plants or for producing cuttings for spring propagation. Old plants of many kinds of Pelargoniums are found to flower more profusely than those raised either from autumn or spring-struck cuttings; and, with regard to the more tender variegated or tricolor sorts, it is desirable that they should be lifted and potted before they get at all injured by frost. All such plants should be more or less cut back when lifted, and all the better kinds should be potted singly into pots which may be somewhat small for the size of the plants, while the more common or hardy sorts may, to economise space, be planted tolerably close together, in shallow pans or boxes. By adopting this method a very considerable number of plants may be wintered in a comparatively small space; and even Alternantheras, Coleuses, Iresines, Bouvardias, Lobelias, Lantanas, Salvias, and similar plants, may be wintered in this way. As regards the three first-named genera, it is necessary that they should be wintered in a temperature not under 55°, and nearly all kinds of plants potted up from the beds and borders will be benefited, and will succeed better, if they are kept in a somewhat genial temperature until they have become fairly established in the pots or boxes in which they have been placed. Rooted cuttings of all kinds of bedding plants will still be benefited by being fully exposed to the open air during the daytime, whenever the weather is favourable, but it will be advisable, in order to ensure their safety, to place lights over them at night, or, in some other way, to protect them from the effects of any unfavourable change which may suddenly take place in the weather. Herbaceous borders will still be gay with Asters and other late flowering plants, and should be kept free from weeds or other littery matter, such as dead leaves or decaying flower-stalks; and annual plants should be cleared off as soon as their beauty is over, except in cases in which seeds are required. Lawns, Grass belts, and gravel walks, will need almost constant sweeping, in order to keep them free from leaves and worm casts. Labour of this kind may however be considerably diminished by the use of Sinclair and Clayton's sweeping and rolling machine, which may be justly said to hold the same relationship to the birch-broom that the mowing machine holds to the scythe. It combines simplicity of construction with efficiency as regards the purposes for which it is required.—P. Grieve, *Culford, Bury St. Edmunds.*

Indoor Fruit Department.

Vines.—Those to be started into growth at the end of September or the beginning of October, must now be pruned. Except where young canes are being taken up, cut off all the wood of this season's growth, leaving only two buds on each spur. The operation of pruning should be effected with a sharp knife, and the wood should be cut nearly straight through. When all the canes are pruned remove the loose bark from the rods, but avoid scraping into the wood. Where mealy bug exists the cleaning must be performed with much care. This pest is always harboured underneath the loose bark, especially in the crevices about the spurs. When the bark is removed the whole Vine should be firmly scrubbed with a stiff brush and plenty of soft soap and lukewarm water. The brushing must be carefully accomplished about the eyes or they are liable to be rubbed off. The washing of the Vines completed, the glass and wood work of the house should be scrubbed in the same way, and the whole should be finally drenched with clean water by means of the garden engine or hand syringe. When the Vines are dry, dress the wounds with Thomson's styptic, working it well into the pores with a small hard brush, and no bleeding will occur when the sap begins to rise. Remove all the loose surface soil down to the roots, and fill up to the required height with a mixture of loam, bones, and half rotten cow dung. Do not leave a particle of the old soil in the house as it generally contains the insects or their larvæ, which have been cleaned from the Vines. After top-dressing, clean the pathways and the pipes, and give the border a thorough soaking with water, so as to moisten the entire body of soil, and render the roots fresh for starting into growth, keeping all the ventilators open day and night until forcing begins.

Pines.—Every favourable opportunity must be taken during this month to admit air to well rooted suckers, and other half-grown plants, so as to keep them dwarf and hardy for the winter. The bottom-heat for the earliest potted suckers need not exceed 70°, or 75° at the most, after this time. The atmospheric temperature may range from 65° to 70° at night and 10° more throughout the hottest part of the day. Houses in which there are plants in fruit should be closed early in the afternoon, the fire being started in time to prevent the temperature falling below 70° at night.—J. Muir.

Hardy Fruit.

Continue to harvest late fruit as soon as it is fit for gathering; and, by the middle of October, all ought to be safely housed, except, perhaps, a few varieties of very late Pears, and these may advantageously be left till the advent of frost. As soon as the fruit is gathered any trees that are not satisfactory should receive such attention as they may require; if old and worn-out destroy them, and substitute young trees; if weak, and they require assistance, remove the old soil and replace it with good holding loam; if too gross, and they make wood at the expense of fruit, lift and re-plant small trees, and root-prune larger ones by digging a trench round them, working well under them and cleanly cutting the "tap" roots. If these operations are accomplished early the trees will have time to recruit their energies and will be better able to resist the summer's drought than if such work is left to midwinter or early spring. New plantations of all kinds of hardy fruits may now be made; indeed, this is the best time to plant, for, with all due deference to the advocates of spring planting, I venture to say that results are against them, and that there is no comparison between the two seasons, early autumn planting at all times having the advantage. Drainage, particularly in heavy soils, is of the first importance when forming fruit-tree borders or quarters; while, in light soils, and when there is a gravelly or sandy bottom, drainage becomes an evil. In the latter case all that is necessary is to trench at least a yard in depth, adding good strong loam if the soil is poor, which such soils generally are. On heavy retentive soils the plants should be raised above the surrounding ground, *i.e.*, planted on hillocks; but in light soils the ground-line should be maintained. In the case of old Strawberry plantations, weed, remove runners, slightly fork over the surface soil, and then apply a good dressing of half-rotten manure. This will enrich the soil, and also prove a protection to the plants during winter. Keep runners off those that are recently planted, and supply them with abundance of water until they have become thoroughly established. For autumn fruiting, the variety Vicomtesse Héricart de Thury is the best which I have ever seen; we have it now fruiting freely. It is also one of the best and earliest for forcing. Peaches and Nectarines being apt to retain their leaves to the detriment of the wood and buds, should, as soon as the foliage manifests a tendency to fall, be occasionally gone over with a long hair broom; by slightly raising the leaves many will fall, and allow the sun to have full play on the wood and buds.—W. Wildsmith.

THE LUXEMBOURG GARDENS.

In the heart of Paris there is an old garden, now shorn of much of its former beauty, but yet interesting and highly instructive to the horticulturist; and it is mainly so because for many years it has been managed by one of the clearest-headed and most accomplished gardeners in Europe, M. Rivière. And, thanks to him, there is yet to be seen good modern gardening there, and much that is interesting preserved from bye-gone days. For example, the old Oleanders in tubs, relics of the past, yet preserved in perfect health here, are stored in winter in the Orangery. They are placed out of doors in summer, and often flower as freely in those big tubs as beds of scarlet Pelargoniums. The Orange trees are very fine too. All interested in fruit gardening should see the little fruit garden here. It is small, but a model of its kind, and most instructive in much that relates to the training and culture of fruit trees. The floral decoration out of doors is, for the most part, made up of a mixture of hardy herbaceous and tender "bedding" plants, the borders being unusually gay with spring flowers before the summer ones are placed in the open air; but there is no early-summer clearance of the beds; the plants that succeed each other are "stolen in" from time to time, without allowing any trace of bareness after the winter is past. The very large collection of Vines once formed, and here a collection of national importance, is now in the Acclimatisation Garden in the Bois de Boulogne. There is, in the hothouse department, the best collection of Orchids in any public garden round Paris, and also a Camellia-house which is worth a visit. The common Honeysuckle is much grown in the gardens here as a low standard bush, freely cut back in the winter. M. Rivière is an able lecturer on fruit culture, pruning, and the like, and has large audiences to hear him in the Orangery during the winter and spring. The custom of lecturing on pure gardening, as distinguished from botany, is common in France, and in many cases a source of much good. It has, in fact, been a main cause of the knowledge of fruit trees, grafting, &c., so widely spread in France. It suffices to explain the fact that amateur workmen and labourers often possess this knowledge in a high degree. Here we leave all the lecturing to the botanists, who, of course, never discourse on pure horticulture. In the lectures, here and elsewhere, the discourse is well illustrated by living specimens, illustrating the points discussed on each occasion, and frequently the professor and class visit some famous garden for a still more effective illustration. V.

Root-Grafting Roses (see p. 234).—This system of propagating Roses deserves to be more generally adopted than it is. In Mr. Methven's nursery, in Edinburgh, I saw a hundred or more fine potfuls of Roses in full bloom, fresh, healthy plants, in 32-sized pots, each bearing from six to twelve flowers and buds, all of which had been root-grafted in spring on the Manetti. Nothing could be more satisfactory than were these little specimens, among which I noted quantities of Madame Falcot, one of the best of all orange Tea-scented Roses, and nearly perfect in the bud state, either for button-holes or bouquets; Maréchal Niel, too, and the ever-welcome old favourite, Gloire de Dijon, were doing well propagated in this way. The scions may be put on the roots by splice or veneer grafting, each tied firmly in its place, and then potted at once, leaving one or two eyes above the soil, after which the pots should be plunged in a brisk bottom-heat of from 75° to 85°, in a close case, and not one in twenty will fail.—F. W. B.

Gymnothrix latifolia a good Centre Plant for Flower Beds.—Those who want a good plant for the centre of a bed should use this Grass, not so handsome in its flowers as the Pampas Grass, but much handsomer in its foliage and manner of growth. Here it grows over 6 feet high, with broad deep green leaves, and reddish-brown knotted stems. It is a more compact grower than the Pampas Grass.—H. N. Ellacombe, *Bitton Vicarage, Bristol.*

VIEW IN THE LUXEMBOURG GARDEN.

THE FRUIT GARDEN.

COLOUR OF FRUITS NO TEST OF MATURITY.

Years ago, the late Mr Donald Beaton electrified the readers of a contemporary by enunciating certain grossly heretical opinions on the subject of ice-houses, and created a vehement discussion, in which he had considerably the worst of it, when he entirely took away the breath of his opponents, who were just at the jubilant point, by declaring that no one disbelieved the propositions he had lately advanced more than he did himself; that he had only been tickling his readers to elicit useful discussions, and, having succeeded, was perfectly satisfied, and obliged to those who had contributed to that end. This incident occurred to my mind when I read Mr. Fish's paper (p. 235) on the colour of fruits in its relation to maturity and flavour, and, had it not been that I had heard Mr. Fish give utterance to some such opinions in the course of conversation when we met, not long ago, at Garston, I should have been inclined to think that in penning such a paper he was actuated by the same good-natured motives as Mr. Beaton. That he is sincere in his opinions, however, I do not doubt, and if his convictions are founded on facts, I can only exclaim—"There are stranger things in heaven and earth than are dreamt of in our philosophy," and Muscats that "ripen green" must, I think, be one of the most remarkable amongst them. It is, however, a significant, not to say a fortunate circumstance, that Mr. Fish has known only two individuals who preferred half-shanked Grapes, to which class Muscats that refuse to "ripen yellow" must be referred. I know one gentleman, who, like Mr. Fish's acquaintances, "can command" the best and the mealiest, but prefers the saddest of sad Potatoes. A Flour-ball rouses his ire, and his gardener is careful to select his stock accordingly. This is a parallel to Mr. Fish's case; and, with equal justice, the gentleman might be described as a "true epicure" in vegetables—there's no accounting for taste. Speaking of Plums and Apricots this season, Mr. Fish refers to their unusually fine colour, and comparatively inferior flavour. I should be afraid to say that my palate retained the taste of last year's fruits sufficiently to enable me to make a comparison; but I can state that the fine colour of our Plums and Apricots this season, and their good flavour, have been a subject of remark; and more of them, I think, have been used for dessert than formerly, while one confectioner thought the Apricots sent in for preserving were better than usual. Mr. Fish refers to the Apricots, particularly, in illustration of his argument, and says his fruit this summer acquired the "rich golden tinge," characteristic of the ripe fruit, while they were yet "as hard as bullets." This is not my experience. That the fruit began to colour earlier I believe; but the colour in no case reached perfection till the fruit was ripe. If colour is no indication of ripeness, how does Mr. Fish explain the well-known fact that the colour is always best on the ripest and best flavoured side of a wall-grown Apricot? He will not dispute the fact, I suppose, that the worst-coloured and most inferior part of the fruit is the side which has been next the wall, and the same may be said of Plums. There is no doubt about the fact of some fruits acquiring a high colour before they are quite ripe, and this is especially noticeable in the case of those fruits that put on a dense bloom; but, in my experience, at least, I have always found good colour associated with superior flavour. Let it be understood, I do not compare fruits of different kinds—a Royal George Peach, for instance, with a Noblesse, or a Black Alicante Grape with a Black Hamburgh; but each with its own kind. Mr. Fish's experience, in this respect, is quite unusual. He says that the "palest Noblesse Peach is often the most exquisitely flavoured." Why "often?" How is it that the rule does not hold good generally? I am, however, able to refute this statement conclusively. We have a Noblesse Peach here, which is trained under a horizontal roof; on the upper side of the branches, next the glass, the fruit is always of a rosy-cream colour, and well flavoured, while that underneath is uniformly pale, and, when ripe to the falling point, the flavour is so inferior as to be detected at once. I have had occasion to notice the fact, with regard to this tree particularly, more than once. The fruit, on the upper side, always ripens first, is sent to the table first, and has been pronounced excellent, while that from the under or shady side of the branches, though equal in size, and soft and melting enough, has been actually taken for an inferior variety. The Noblesse, when grown in a good exposure, where it acquires that pale, but rich creamy tint which is its true colour, is one of the best and finest looking Peaches we possess. That the blackest Grapes are often the "sourest and worst flavoured," I refuse to credit, as opposed to all past experience of a trustworthy kind. "Golden Muscats, hard in flesh and destitute of flavour as compared with green ones," I never saw, tasted, nor heard of before; and Muscats that "ripen green," are an anomaly which I venture to think Mr. Fish never saw, nor never will see. Red Hamburghs are invariably associated with shanking, and too heavy cropping, a most significant fact that needs no comment, while well-coloured Grapes never shank; at least I never saw or heard of them doing so, whether they were black or white. Are half-coloured Strawberries the best flavoured, or green Gooseberries the sweetest?—and do not even the blackbirds and thrushes (true epicures, whose instincts rarely fail them) always wait till the Cherries and Currants are red and ripe before they deign to touch them? "He who runs may read." The joint productions of the sun's light and heat are colour and flavour, and the two are never disassociated.

Wortley. J. Simpson.

The high-coloured condition of fruit this season, as compared with that of other years, and to which your correspondent alludes (see p. 235), may, perhaps, be owing to the absence of sun till towards the ripening period—a time at which all fruits assume those rich tints, more or less, that are generally looked on as a sure indication of flavour. In ordinary seasons, with plenty of sunshine and light, I imagine the tissues forming the skins of fruits would not be so tender and delicate as they appear to be this year, and, therefore, not so susceptible to the strong influence of light and sun, that naturally act more readily and rapidly on them when caught in their present state. I hold a different opinion from that of your correspondent, as to colour being no criterion of ripeness or flavour, as I have never yet found high-class flavour in pale or imperfectly-coloured fruit. Colour is generally looked on as the finishing mark that characterises each particular variety, and without which the fruit must naturally be deficient in flavour. The two must perforce go together, as the same influence that puts on the colour adds the flavour at the same time, by converting the crude juices of the fruit into saccharine matter. Take the case of Peaches. It is a well-known fact that fruit of these off standards, or any part of a tree where they are not fully exposed so as to become coloured, are not to be compared with those from the upper side of a trellis, where they get both colour and flavour by full exposure to sun and air. I do not think your correspondent would find a connoisseur of Peaches committing the grave mistake of taking a pale Noblesse, or any other kind, with the expectation, or even the possibility, of finding the proper flavour. Such fruits are only found on the under side of a trellis, or in some other position where they have not had a chance of colouring, and, as a natural consequence, they would likewise be deficient in flavour. It is on this account that Peaches from walls are generally so much to be preferred to those grown under glass, as on walls they are fully exposed, and always finish off with the proper colour and flavour peculiar to each variety. It is just the same with the hardier fruits, such as Pears, &c. If flavour is found in a high degree, it is always in such as have the most colour. Take the case of a Marie Louise, grown on a pyramid or on an espalier fully exposed to the sun, and compare them with others not so favoured. Those in the former position will assume a rich russety-brown, to which those of a paler hue will bear no comparison as to flavour. Your correspondent mentions the Reine Claude Violette Plum as a case in point, having colour and bloom, while the fruit was unripe or as acid as a Sloe, but that is the usual characteristic of that sterling variety, as it always puts on colour and bloom some time before it becomes thoroughly ripe. Owing to the lack of sun till Apricots should have been ripe, they came in very irregularly, and with us were not so large, well-coloured, or so richly flavoured as usual. As to Grapes, I have never yet found real Black Hamburghs sour or deficient in flavour, but, like most Grapes, they improve by keeping, although the lustre of the rich black bloom becomes a little dim if they hang long after the ripening period. On the other hand, Muscats and other white Grapes improve in colour, and it is only time and plenty of light that will put the rich amber tint into Muscats, and, may I add flavour also, as the two are inseparable. So convinced am I of the colour test as to ripeness, quality, and flavour, that I have always set my face against cutting fruit at shows, and pretending to judge by flavour, as I hold that it is quite impossible to decide fairly in that way. Anyone properly acquainted with fruits can easily judge by appearances whether the specimens upon which they are adjudicating have come to maturity; and if so, and the fruit has size and the proper colour and finish that characterise the particular variety, flavour is sure to be also present.

J. Sheppard.

DOYENNE DU COMICE AND OTHER PEARS.

As a November Pear, for quality, size, and beauty combined, this Pear is unequalled. I have grown it here sixteen years, having planted it in the autumn of 1868. As a proof of its quality it was awarded the first prize three years following by the Royal Horticultural Society—in 1866, 1867, and 1868. In 1867, I was awarded the first prize with this variety, twenty-eight dishes being in competition; and again, in 1868, with twenty-one dishes competing against it. I did not exhibit it in 1866. The tree—a pyramid on the Quince stock—is a good bearer, of excellent habit, and probably the parent of some thousands of trees, as grafts were freely given to nurserymen and gardeners several years before grafts were distributed by ballot by the Royal Horticultural Society. To prolong the season of ripening as much as possible, I have grafted another tree, on a west wall, where, netted from birds, I let the fruit hang on the tree as long as possible. The heaviest I have grown was from the pyramid, and weighed 1¼ lb. It fell prematurely during a high wind, was sent to the Royal Horticultural Society, and reported on. In selecting four of the best sorts, I should choose the following, viz.:—Louise Bonne, Doyenné du Comice, Winter Nélis, and Bergamotte d'Esperen. Louise Bonne does well on the Quince, bears freely, and is of better quality when grown as a pyramid than on a wall. It is one of the best October Pears, and would be followed through November by Doyenné du Comice, to be succeeded by Winter Nélis, which is the best of all Pears, in my opinion. With me, on a south wall, on the Quince stock, it bears enormously, and I am obliged to thin each year, or the fruit would be comparatively flavourless. I have often had them weighing upwards of ½ lb. each, clean and handsome; whereas, on the Pear stock, on a south wall, the crop is always thin, and the fruit much blotched; the difference is extraordinary. I have had ripe fruit from the same tree from October till February, by gathering some early and keeping them in a warm room, and by letting the remainder hang on the tree as long as possible under a net. Bergamotte d'Esperen I also grow on a south wall on the Quince stock; it is the best late Pear I have, a good bearer, but requires to be well thinned—thinning ensures a crop every year, unless injury is occasioned by frost. It succeeds Winter Nélis, and lasts until the end of March or April. There are many other first-rate kinds; but, in seasons when they keep badly, I have found the above-named among the best. Monarch and Easter Beurré often become spotted before they ripen; Beurré Rance is always very fine, but never ripens with me; other sorts, which bear freely, are not of first-rate quality, such as Beurré Bosc and Beurré Diel, while some of the best in flavour last only a few days; for instance, Thompson's is one of the most delicious Pears I know, but is past in a few days. Crassane is also richly flavoured, but is very short-seasoned and more or less gritty. Comte de Lamy is first-rate on a pyramid, but inferior on a wall, and only lasts a few days. Glou Morçeau is one of the best sorts, a good bearer, superior in size and quality, and lasts a good time in its season of ripening, but is ripe at the same time as Winter Nélis. My wall trees are all trained horizontally, and by notching the leading stem deeply, just above the side-buds I wish to break, I have had four or five strong side-shoots each side in one year, so that four years after planting the branches had reached the top of the wall, there being fourteen on each side of the centre stem, and three courses of bricks between each branch. The soil in which the trees are grown is a mellow loam, such as is generally known as a good Melon soil. When the trees have a good crop they are mulched with dung, and occasionally well soaked with water through the summer.

Killerton, Exeter. John Garland.

THE ESKBANK BUNCH OF GRAPES.

In answer to enquiries made of Mr. Curror respecting the treatment of the Vines at Eskbank that produced the 26 lbs. bunch of Grapes, recently shown by him at Edinburgh, he has kindly furnished us with the following:—The Vinery in which the large bunch of Raisin de Calabre grew that I staged at the international fruit and flower show at Edinburgh is a small lean-to house with a southern aspect. It measures 20 feet in length by 14 in breadth, and 11 feet in height at the back, and is heated by four rows of 4-inch hot-water pipes. The Vines were planted in 1868, and produced four bunches each the third year after planting. They are planted 3 feet apart in the inside of the house, with an outside border 13 feet wide and 4 feet deep, the soil of the border being composed of one half yellowish clayey loam and one half light gravelly soil strongly impregnated with iron. With this soil are mixed a few half-inch bones and a small quantity of manure. The border is top-dressed every year, inside and out, with 3 inches of cow or horse manure, and gets no protection from rain during winter. There are five Vines in the house besides the Raisin de Calabre, viz., two Black Alicantes, one Lady Downes, one Bowood Muscat, and one Mrs. Pince, all of which carry bunches above the average size. The Raisin de Calabre which bore the 26 lbs. bunch produced three other clusters, one of which weighed 6 lbs., another 10 lbs., and one that still hangs on the Vine is calculated to weigh about 18 lbs. This gives just 60 lbs. of Grapes for one rod about 14 feet long. The Vines are usually started about the 15th of February, when the house is shut up for two weeks without fire-heat. The third week they are assisted by a little fire-heat, and are also syringed several times each day until they break into leaf, after which the syringe is never used. I leave from 2 to 3 inches of air on all night, both at back and front, according to the state of the weather, and give very little fire-heat, except when the Vines are in bloom, until the Grapes begin to colour. The inside border gets a thorough soaking with water three times a year—at starting with clean water, again after the berries have set, and, finally, just before they begin to colour, with guano-water. Under this treatment the leaves grow large and leathery, which, with well ripened wood, I consider to be the secret of getting large bunches of Grapes of good quality.

Eskbank, Dalkeith. John Curror.

A GROWER OF NEWTOWN PIPPINS.

It may not be known that there is an "Apple prince," whose income from his handsome Apple orchard on the banks of the Hudson River exceeds that of many bankers. The "Troy Times," in describing a visit to his place, says it is interesting as illustrating how a man may make money by building up a reputation for his produce. "If you should be walking with me on almost any pleasant day in Fifth Avenue, near Madison Square, I might point out the most successful pomologist (or Apple grower) in the world. Robert L. Pell, the gentleman to whom reference is now made, is the lineal descendant of an English Peer, who obtained a patent for a vast tract of land in Ulster County, near the old town of Esopus. Mr. Pell occupies the ancestral farm, which contains 1,200 acres, all of which he cultivates by his own personal attention. During the spring, summer, and the autumn he resides upon the place; but when winter approaches he removes to his Fifth Avenue palace. Mr. Pell's father, who was noted for his good judgment in agricultural matters, stopping many years in the little village of Newtown, observed two Pippin trees of English origin, whose fruit was much sought for. The one produced an Apple tinted with yellow and red, and the other a fruit of a green hue, the difference being solely caused by the difference in soil. He was so much pleased with the fruit that he determined to create an extensive orchard of a similar kind. Trees were planted and grafted, and after many years of perseverance and labour the grand orchard was in existence. Mr. Pell then could show 200 acres planted with the Newtown Pippin alone, and containing 21,000 trees. He then remarked, if each tree should yield his son one dollar a year it would be a handsome income. His plan, however, has been greatly exceeded, for some of these very trees have yielded 18 bushels at a picking. While so many rich sons fall victims to their own wealth by the vices that haunt prosperity, Robert L. Pell found his tastes better satisfied with his country seat and its enormous crops. Commonly speaking, the Apple tree bears every alternate year. Mr. Pell determined to have an annual harvest, and to give his orchard a handsome start, he sacrificed the crop of a bearing year. All the Apples were picked green. He had discovered that the germ of the next year's fruit was in existence at the time of the Apple harvest; but that the tree would be so exhausted that this germ would fail of development, and a year of rest would follow before another crop could be produced. Having stopped his trees from fruiting in the manner I have mentioned, he was sure of a crop on what was generally the off year, and he determined to follow this up by a treatment that should abolish the off year. He learned that trees required a variety of food, the chief of which is potash, lime, and soda, and his orchard has been thus fed with all the success that could have been anticipated. The potash is found in wood-ashes, lime is obtained from oyster-shells at low cost (stone-lime being undesirable), while soda is supplied by common salt. An orchard thus fed and judiciously pruned cannot fail to succeed. His plan is to fill his barn-yard with swamp-soil in the fall. This absorbs the drainage, and it is at the same time supplied with the above-mentioned ingredients. In the spring it is taken to the orchard, which is ploughed and sown with Clover, as an additional fertiliser. A fruit nursery for the purpose of renewing the orchard is a part of the scheme. During Apple harvest about one hundred men are employed, and the work generally requires a fortnight. The rule is to pick the trees clean, and not to let go of an Apple until it rests in the basket. The baskets are laid carefully on the ground and the teamster picks them up with equal care; and conveys them to the Apple house. This is one of Mr. Pell's inventions, and he has four in use. They are spacious structures, perhaps 40 by 100 feet, and are two storeys high. The first storey has no window. You enter by a wide door, and the Apples are seen covering the entire interior to the depth of 4 feet. The upper part of the building has a few windows, and the door is grated, so that when closed there is an ascending draught. The fruit will, while in this place, discharge a very large amount of moisture, and thus deliver itself from the chief danger of decay. An Apple-house at such a time is really a fine sight. In three days the sweating is done, and the draught removes the moisture. The fruit is then sorted, and all below a certain size are carted to the cider-mill, while the rest are packed for shipment. They are placed in boxes, each of which contains 100 of the best Newtown Pippins, and are at once shipped to Liverpool. Mr. Pell's fruit is as well known there as it is here, and he has adopted the custom which prevails in the Orange and Lemon trade in this city, viz., of selling it at auction. The sales are largely attended, and the Pippins from the Pelham farm are sold all over Europe. They sometimes bring fourteen cents. a-piece by the box. Such is the value of a reputation, and in this point the Pelham fruit has for forty years been unrivalled. Mr. Pell has 80 acres devoted to Grapes, which are in great demand in the city. He has a peculiar way of placing the best (if there be any difference) at the bottom of the basket; and hence his brand needs no recommendation. He has 800 acres under general cultivation, and, with the assistance of improved machinery, the work is done by nine regular hands, with an extra force during fruit-picking. His hay is got in the same day it is cut, and hence does not often get injured by a shower. His cider is as popular as his Apples, and he has sometimes ground and pressed 350,000 bushels. His walks around his mansion are nine miles in extent, and are kept in perfect neatness."

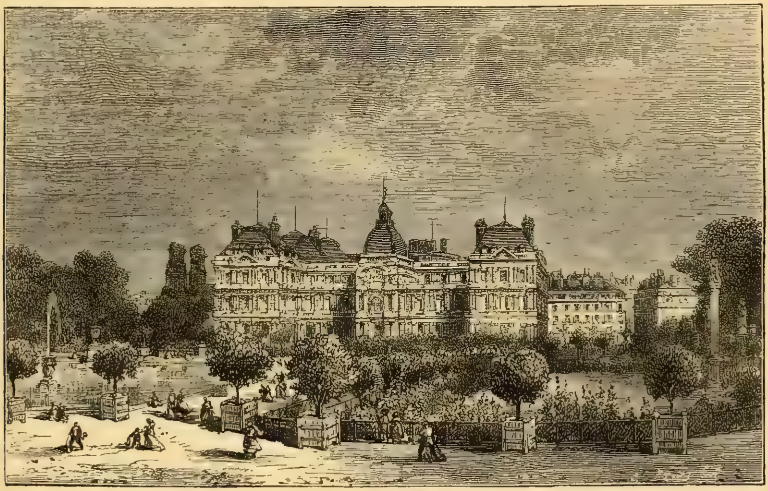
PRUNING DIFFERENT CLASSES OF APPLES.

Writers on this subject are apt to say that no general rule can be given for pruning, other than to give each tree an open and well-balanced top, because each tree has its individual habits and requirements, so that only practice can afford guidance. But, of course, there are principles to act upon in this branch of culture as well as in others. Our aim in the orchard is to produce fruit. In the nursery, we aimed only at growth of wood and a certain form for our trees. Now fruit comes only through blossoms, and these come from large buds which are usually surrounded by a whorl of dead leaves, and generally sit on short branchlets called "spurs," which are found on wood over two years old, and which require at least two years to mature, and cannot mature at all if shaded so as to be deprived of free air and full light. With reference to these blossom buds, we may divide all the Apple trees in the orchard into three classes:—(1) Those which form spurs at an early age and numerously; (2) those which form them in less profusion, making with them also annually a fair growth of wood shoots of say 8 or 10 inches in length; (3) those which make spurs rather reluctantly, but instead make a profusion of wood shoots, crowding the exterior of the head with leafy twigs which cut off light and air from the forming spurs. Of the first class we find examples in the Rambo, the Summer Rose, the Keswick Codlin, the Wagener, &c. The pruner will reduce the amount of spurs in this class in order to encourage the issue of young shoots which can afford a freer passage for the sap, and will yield larger and juicier fruit. He will note the surroundings of each shoot. If it has plenty of room and open light for all its leaves, when they become fully expanded, he will not cut it; but, if it is crowding or crowded in this respect, so much of its spurs or branches must be sheared off as will leave room and admit light, even if it must be cut back to its first spur. Six inches is the least distance that can be properly allowed from spurs on one branch to those on another, even in the fullest light. Of course, most of the pruning in this class of trees is in the interior of the head, and there the spaces must be greater. The pruning-shears is much the handiest implement for this work; and, as to season, any mild day in winter will serve, but the month of June is a good time, especially for the tyro, to see superfluities more plainly. This class of tree mostly bears crops only every other year, and they may be pruned the more freely in the years of rest. The trees of the second class usually bear more or less every year, and many sorts, such as Ewalt, Hoopes, Summer Pearmain, Summer Pippin, September, Golden Russet, Winter Sweet Paradise, &c., grow naturally so fairly, making an equal proportion of spurs and of new shoots, and leaving all open and well balanced, that very little pruning is necessary after the head has been once formed. In the third class are many fine sorts that are called poor bearers, and are so if left unpruned, because of their luxuriant growth of young wood. Such sorts as the Yellow Bellflower, the Spy, the Dyer, and the Jefferis, will well repay the trouble of checking and thinning the redundant shoots. This requires a ladder, for it should be done from the outside. Much can be done, and is best done, by nipping off with the thumb and finger in May and June, these mischievous surplus shoots. This is very much better than the next best thing—that of cutting them out in the winter after they have made growth and contributed during one summer to shade and smother the backward spurs. Room can often be made for shoots in these trees by bracing or tying them out into an open space on one side or below them, and this is, of course, much better economy, when it is practicable, than cutting them out. There is seldom any occasion in this class, or in class second, for shortening any exterior shoots. To do this would only aggravate their propensity for making new wood shoots. There is a class of trees, including the Vandaveres and Smokehouse, which bear only on terminal buds on the tips of the annual shoots, and these shoots bifurcate close below this terminal fruit-bud, so that every year there are two such shoots issuing from the one of last year. These trees belong to the third class, but the sprigs require shortening where practicable, because their continual extension and the weight of fruit on their ends, make them awkwardly pendent.—"Cultivator."

Grape Colouring and large Bunches.—In order to obtain bunches of Grapes above the average weight and well finished may it not be necessary to adopt a somewhat altered practice as regards lateral pinching? Where a large bunch occurs it must, as a matter of course, require a greater amount of nutriment to perfect it, and that of course comes from the leaves. Small bunches of Black Hamburghs if not too thickly placed upon the Vine, are sure, if the plant is in fair order, to colour well, but if the bunches should be above, say 3 lbs. in weight, there is a chance that they will not do so perfectly, especially towards the point. Does this defect arise from the error of pinching too much for a crop of big bunches, and will the perfecting of larger than ordinary bunches, depend in a great measure upon the power of the foliage on the branch upon which the bunch is? I believe there is something in this; and, next season, if I have an opportunity, I intend to test the theory and leave a good deal more lateral foliage where a large bunch occurs.—M. C.

Strawberry Runners.—One of the most important points in successful Strawberry forcing is to procure good runners early in the season, so that they may have time to complete their growth, and show good plump crowns, and roots that completely fill the pots, by the end of September. Many cultivators recommend the planting out of early forced plants, from which to procure the runners for another season's forcing; but, after several year's observation, I must confess that following up this system for many seasons in succession is more likely to bring diseased and barren plants than anything else. When this system has been adopted, I have seen more spotted leaves and sickly plants than I ever saw from runners procured from plants that were not forced. The method we adopt, with excellent results, is to plant the surplus pot plants in single lines between freshly-planted Raspberry canes or bush fruit, solely for yielding runners the following season; for young plants not only send out earlier and stronger runners than older ones, but, by being in single lines, every runner gets the full benefit of sun and air. The permanent fruiting beds are not disturbed in the operation of layering; and, in watering and attending to the plants, no fruit of any consequence is destroyed. The best plants may be forced into barrenness, either by food that is too stimulating, or excessive heat in the earlier stages of forcing.—J. Groom, *Henham.*

Fresh Peaches from America.—I observe that the experiment of transplanting Peaches in a fresh condition from America to England, by means of refrigerators, is being tried by an extensive Peach grower on the other side of the Atlantic, but I doubt its success, not because the Peaches will not keep during a voyage of fourteen or fifteen days, but because Peaches that have been kept in ice so long go bad almost directly after they are exposed to the air in an ordinary temperature. I am in the habit of putting quantities of Peaches and Nectarines in ice every year, when they come in too fast for use at the time, and I find that, after a fortnight or three weeks preservation in that way, they become discoloured and unpresentable a few hours after being introduced to the fruit-room. We never, therefore, now bring them out of the ice till they have to be dished up for dessert. Such kinds as Noblesse and the pale and thin-skinned sorts are the worst, while Nectarines of a dark colour keep best of all—at least, they do not show any discoloration and are good in flavour.—J. S. W.



Oleanders and Orange trees in tubs in the Luxembourg Gardens. (See p. 286.)

New Fruits of Promise.—There are many new fruits which the originators laud highly, but they are heard of for a short time only. There are a very few which live longer, and obtain a greater or less celebrity. Among the fine sorts, says the "Cultivator," which have come into notice within a comparatively few years, the following are named in the last report of the American Pomological Society as having already succeeded in several states of the Union:—The Charles Downing Strawberry is recommended in nineteen different states, and President Wilder is named as a promising sort in fifteen states. Mammoth Cluster Raspberry is recommended as a valuable variety in no fewer than twenty-eight states, and appears to be the most widely popular of all Raspberries. Clapp's Favourite exceeds all Pears for the rapid progress it has made in public favour, being now noted as worthy of cultivation, or as giving promise of value, in nineteen states. The Walter is marked as a Grape of promise in twenty-two states. The Kittatinny stands above all other Blackberries, and is recommended in twenty-four states, in seven of which it is named as of great superiority.

Fly Plagues.—Flies have attacked fruits of all kinds this month, both on walls and in orchard-houses, notwithstanding the paucity of wasps to pierce it for them. In a glass-covered wall here there is a collection of hardy Grapes about ripening, and all the thin-skinned kinds, such as the Chasselas de Fontainebleau, Early White Malvasia (or Early Kienzheim), Buckland's Sweetwater, and Foster's White Seedling, are much disfigured in the bunches by flies. I find old-fashioned traps to be still the best in which to catch them, namely, putting one hand-glass on the top of the other, and piercing a few holes in the glass at the apex of the lowest hand-glass. When some half-rotten fruit or sweets of any kind are put below to entice the wasps and flies, immense quantities of them can be killed in a short time in these traps.—William Tillery, *Welbeck.*

Cox's Orange Pippin Apple.—In "F. W. B.'s" account of Mr. Dancer's fruit garden (see p. 255), I observe that this Apple is spoken of as a large one, suitable for culinary purposes. I can fully endorse all that can be said in its favour for dessert, but I have never seen it used as a kitchen Apple. It is medium sized, and of the highest quality.—James Groom, *Henham.* [As grown by Mr. Dancer, on the true Paradise stock, Cox's Orange Pippin is, as described by "F. W. B.," above the medium size, and, of course, delicious for cooking when they can be spared for this purpose. Each tree of Mr. Dancer's plantation of 400 on the true Paradise stock bore fruit considerably larger than that usually grown.—Ed.]

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

The Lady Apple.—There are two varieties of Lady Apple, viz., Pomme d'Api rose and Pomme d'Api noir. The black one is really black, if we may term a Blackberry black, and has a very peculiar appearance on the dish in company with its rosy-cheeked companion. Both are worth growing, but I have had no experience of them in this country.—Chevalier.

Training Peaches under Glass.—An idea worthy of attention is carried out in a lean-to Peach-house at Drayton Manor. Cordon branches or bearing shoots are trained at intervals over the pathway, the trees being on the back wall; and from these branches some very fine fruits were obtained this last season. Mr. Thomas says, and doubtless truthfully, that their flavour was of the highest order, getting, as they do, the sun on all sides.—A. M.

Suttons' Hero of Bath Melon.—This is the handsomest and best flavoured scarlet-fleshed Melon in cultivation. It is a sure setter, very prolific, beautifully netted, firm but melting in flesh, and has the thinnest possible rind. I consider it the best of all scarlet-fleshed Melons. It was awarded a first prize at the late international fruit show at Edinburgh; and at the Alexandra Palace, a week or two previously, it was placed second, though the fruit had been cut a fortnight before.—W. W., *Heckfield.*

THE FLOWER GARDEN.

SCENTED AND SCENTLESS ROSES.

Sweet Scented Roses.

Having ascertained that I had sixteen varieties of scentless Roses in my garden, I made out a list of these, and, at the same time, another list of the most popular kinds grown which really did possess the fragrance so much sought after in the queen of flowers. This list—in which the first thirty mentioned are those which, in my opinion, are superior in this respect—may be useful for the guidance of persons intending to improve or enlarge their collections. I have said nothing about the Moss, Provence, Gallica, or Tea-scented varieties, which are all more or less highly perfumed. Amongst the Tea-scented kinds, Maréchal Niel is decidedly the sweetest and most powerfully scented of all. My list embraces Hybrid Perpetuals only.

La France
Marie Baumann
Alfred Colomb
Sénateur Favre
Monsieur Woolfield
Louise Van Houtte
Bessie Johnson
Souvenir de Julie Gonod
Madame Thérése Levet
Baroness Louise Uxkull
Duchess of Edinburgh
Alexander Dickson
Sénateur Vaisse
Duke of Edinburgh
Pierre Notting
Maurice Bernardin
Exposition de Brie
Velours Pourpre
Duke of Wellington
Madame Victor Verdier
Le Rhone
Leopold Hausburg
Madame Moreau
Mdlle. Julie Pereard
Jules Margottin
Duc de Rohan
Mdlle. Marie Rady
Princess M. of Cambridge
Miss Laing
Madame Knorr

The above thirty varieties may be depended on as being amongst the most highly perfumed Hybrid Perpetual Roses in cultivation; the following are, however, little inferior:

Madame de St Pulgent
Duchesse d' Orleans
Souvenir de Spa
Vicomte Vigier
Prince Humbert
Abbé Girandier
Madame Auguste Verdier
Ferdinand de Lesseps
Fisher Holmes
Annie Wood
Charles Lefebvre
Madame Chas. Wood
Jean Cherpin (Bennett)
Emilie Hausburg
Cheshunt Hybrid
Camille Bernardin
Lord Clyde
Captain Christy
Madame Marie Finger
Madame Derreux Douville
Xavier Olibo
Duchesse de Caylus
Leopold Premier
Dupuy Jamin
Baronne Haussmann
Gabriel de Peyronny
Madame Clotilde Roland
Mdlle. Marguerite Dombrain
Claude Levet
Felix Généro
Anna Alexieff
Alpaide de Rotalier
Marguerite St. Amand
Semiramis
Madame Boll
Prince Camille de Rohan
Madame Rousset
Gloire de Santenay
Madame George Paul
Adolphe Brogniart
Souvenir du Général Douai
Elie Morel
Edward Morren
Beauty of Waltham

Scentless Roses.

During the last twenty years a multitude of new Roses has been introduced into England from the Continent, most of them of the class known as Hybrid Perpetuals, and all remarkable for their sweet fragrance. Since 1869, generally known as Castellane's year, a change has taken place, and many of the Roses introduced since that time are entirely without fragrance. A large number of the scentless varieties, a list of which is subjoined, will be found amongst the finest exhibition Roses of the present day. Although, as regards form and colour, many of these are perfect, the entire absence of perfume is a great drawback, and the only way to get over the difficulty, when using them in a bouquet, is to place some highly-scented varieties amongst them. In giving this list of scentless Roses I may state, that they have all been introduced during the last six years except one, viz., John Hopper, which came out about ten years ago; this Rose is scented, but so slightly as to be scarcely perceptible:

Marquis de Castellane
Baroness de Rothschild
Etienne Levet
Comtesse d'Oxford
Lyonnaise (Lacharme)
President Thiers
Princess Christian
Clémence Raoux
Henri Ledechaux
Marguerite Appert
Princess Beatrice
Etienne Dubois
Madame Victor Verne
Madlle. Eugénie Verdier
Marquise de Chambon
Princess Louise Victoria

Fencote, Bedale. Henry Taylor.

Clematis Flammula robusta.—The origin of this Clematis is somewhat uncertain. It is supposed either to have been sent from Japan to the Acclimatisation Gardens in the Bois de Boulogne, near Paris, or to have been found by accident in a case of plants received from abroad. It is very hardy and woody, growing to a height of from 18 to 28 feet. Its leaves are glossy and heart-shaped, and the flowers white and very odoriferous. It is a very pretty plant, suitable for decoration, inasmuch as its leaves, which are numerous, last long, and it will thrive in any soil. So speaks the "Revue Horticole" of a plant we have not yet seen in cultivation in this country. Considering, however, the value of the ordinary C. flammula, this new variety is likely to prove a valuable gain to our gardens.

LILIUM JAPONICUM COLCHESTERI.*

At p. 248 of The Garden is a notice of M. Van Houtte's "Flore des Serres," in which "W. E. G." writes—"Plates 21 and 22 represent the beautiful new Lilium japonicum Colchesteri, recently introduced from Japan, by Dr. Wallace, of Colchester, and resembling a very vigorous-habited and profuse-blooming form of the fine, but difficult to manage, L. Browni, with the outside stainings of the petals considerably deeper than those of that variety. According to some authorities, this Lily is identical with that introduced a couple of years ago, under the name of L. Krameri album, but the point is not yet satisfactorily decided." It may possibly interest some of your readers to learn a few particulars about this fine Lily. About three years ago, Mr. Kramer sent me over three bulbs of what was supposed to be a fine variety of L. longiflorum; of these one bulb only flowered. The plant was quite distinct in its growth from L. Browni or L. auratum; it rather resembled L. longiflorum, but possessed well-marked points of difference. On expanding the flower, which resembled in shape that of L. Browni, but was of stouter texture, sun-painted only on its upper outer surface with a rich chocolate-brown, and of a creamy-yellow colour, I took it to Mr. Baker, at Kew, and on turning to plate 2 in Mr. Bury's "Hexandrian Plants" we found the identical Lily there figured, alike in every respect. It was there described as having been introduced into England in 1804, as having been flowered at Liverpool, growing 4 to 5 feet high with three or four stems, bearing five to six flowers on each. This form is well remembered by old Lily growers under the name of L. japonicum, but being lost sight of, L. Browni, a later introduction, closely resembling it as far as the flower goes, was often called L. japonicum. I have been also referred to Thunberg's "Flora Japonica," p. 133, for a description of this Lily, but I have not been able to obtain that work; but I am informed that the Lily described by Thunberg as L. japonicum is not the Lily taken by me to Kew, in 1873, but the one introduced by me in the previous year as L. Krameri album. It remains, therefore, to be settled which of these two forms is to be called Japonicum; and if it turns out that the plant now known as L. Krameri album is to bear that name, then I claim for myself the honour of re-naming Mrs. Bury's Lily. After growing and flowering all these Lilies, I am quite convinced in my own mind that there are three quite distinct forms:—1. Krameri album, now so called, resembling in shape, size, and habit (except in being of a white colour) the lately introduced L. Krameri figured last year in the "Floral Magazine," and in Van Houtte's "Flore des Serres," vol. xx., 2,061. The bulb of this Lily resembles that of a small auratum; its foliage is also very similar. 2. Browni, the bulb of which has a peculiar shape, well known to Lily growers, the apex being flattened and broader than the base. In growth and habit this plant much resembles a stout auratum; but the stem is darker, the leaves curl downwards, and soon assume a dark tint. It is figured in Van Houtte's "Flore des Serres." 3. Japonicum, the bulb of which somewhat resembles that of L. longiflorum, its growth and foliage being also at first similar, its flowers like, but superior to, that of L. Browni. Of these three forms, I prefer the latter; but time and cultivation will decide which is the finest. Alexander Wallace.

Colchester.

AUTUMN CROCUSES AND COLCHICUMS.

I was glad to see attention directed (see p 245), to these useful and attractive autumn flowers. Some years have elapsed since I saw either cultivated to any extent; but I remember a garden in which they once flourished, and with good effect, in masses planted amongst the Grass on a sloping bank, and partially overhung by tall shrubs. The light purple flowers of the Colchicums appear before the leaves, consequently they should always be planted amongst Grass or Moss, for, in an ordinary border, they present rather a bare look. I have a cluster of them now in bloom, and they seem to me unfinished. The flowers die off without leaving any sign of fruit or leaves, but the ovary develops itself under ground, and the fruit or seeds appear in spring, at the same time as the foliage, which dies away in June, when the seeds have ripened and a new bulb has been formed by the side of the old one. The Colchicum is powerfully poisonous, but it has, like many other poisonous plants, been turned to good use by medical men. The Saffron Crocus also bears purple blossoms in October, but they appear shortly after the leaves peep forth and are exceedingly pretty. This plant claims an eastern origin. Solomon mentions it in his songs, and Homer introduces it to notice as one of the favoured blossoms that formed Jupiter's couch—in fact, the ancients, including both Virgil and Pliny, seem to have been very partial to the Saffron flower. The Saffron Crocus was brought to England in the time of

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* As Camulodunum is the old Roman name for Colchester, and Colcestriensis-e its modern adjective, the word Colchesteri is, in a strictly orthographic sense, quite inadmissable.

Edward III., by Sir Thomas Smith, and was first cultivated at Walden, in Essex, which has ever since been called Saffron Walden. I would strongly advocate its introduction into our flower gardens, for the sake of its beauty at a time of year when flowering plants are scarce.

Berry Grove, Liss. H. E. Watney.

THE VALUE OF CARPET BEDDING.

Mr. Hibberd has something to say, in the "Gardeners' Magazine," on the present aspect of bedding, with which many of our readers will agree. The bedding system has so completely changed in character within the past few years that we think it may rank with the clothing system, as an example of the mutability consequent on the influence of fashion. The time is at hand, perhaps is already come, for Lady Corisande's garden to be cleared of its climbing Roses and Honeysuckles, its Lavender bushes and sweet Mignonette, its Carnations and Pinks and Potentillas, in order to be filled with Calceolarias, Geraniums, Verbenas, and Petunias, because these represent the good old times, and properly belong to antiquarian gardening. It is a melancholy fact that the plants that have been most abused for the various sins of the bedding system are virtually out of fashion, and in their place we have the Golden Feather and the Alternanthera—the one an uninteresting plant with sulphur-coloured leaves, and the other an equally uninteresting plant with liver-coloured leaves. The Geraniums push the old-fashioned Cloves and Candytufts aside, and now the leaf-bedders push the old-fashioned Geraniums aside, and with the red masses and yellow margins, alternating with yellow masses and red margins, consisting everywhere of leaves alone, we are now quite in the fashion, and can do without flowers altogether. Such is the state of the case as regards public gardens, certainly, and in private gardens the new system is growing in favour; so that bedding is being vigorously and rapidly simplified, and now, instead of employing the gardener, the stenciller, with about four pots of colour, and half-a-dozen scrolls that can be disjointed, reversed, or used edgeways, will be able to decorate the promenade to perfection. There is much to be said in favour of the new fashion, as, indeed is the case with every new fashion. In the hot dry summer of 1874 it was in high favour, but the cool moist summer of 1875 has increased its popularity. The heavy rains of June and July last utterly ruined the Geraniums and Verbenas. The Calceolarias liked it; but when these have it all to themselves the garden resembles a field of Buttercups. On the other hand, the leaf-plants were unusually luxuriant in their growth, and though the cloudy skies dulled their colours, their uniformity of tone and density of growth made ample amends, and such as they might be and should be such they were; and who now dare lift his voice or pen against them? The best display hitherto accomplished of this kind of garden colouring may now be seen in the dressed grounds of the Crystal Palace. Mr. Thompson, the able manager there, is our first master in leaf-colouring, and has always given it his best attention as eminently adapted to the requirements of the promenade. Mr. Wildsmith, at Heckfield, is equally convinced of its usefulness and largely avails himself of its capabilities. Such examples are instructive. They teach us that the first point in the mind of an artist required to colour a much-frequented parterre is to adopt whatover course is most to be relied on in a country where, as regards weather, we are never sure of anything. A cold wet summer converts Geraniums into Cabbages, and Petunias into coarse Tobacco plants, and as for Verbenas they simply disappear as they are eaten up by mildew. If you do not have sunshine you cannot have flowers, but leaves you may, to a considerable extent at least, be sure of. Thus it is that in certain places leaf-bedders are the most valuable, and those who best understand them have displayed considerable skill in calling in the aid of artistic geometry for effectually displaying their few but very solid colours. For places of public resort a distinct and decisive display of leaf-colouring is in every way justifiable. The present beautiful appearance of the Rose Mount at Sydenham fully justifies the system of garden colouring it splendidly represents. But the style that tells in a great public garden may be quite unsuited to the small private garden, and in the subject before us we are bound to note a very striking example. It is very much the rule with ladies and gentlemen to require their gardeners to go to Sydenham to "pick up notions," and the consequence is that in many small places we see bad imitations of the grandest promenade style that are simply obnoxious, and would, at the best, be out of taste even if they were well done. The public garden is seen by a new crowd of visitors every day, and the organised surprises tell; but the private garden is seen by the same eyes daily, and, though it may surprise and delight the occasional visitor, the dwellers on the spot must soon become weary of flower beds that are like so many centres and corners cut out of carpets, and that are reversed and divided and doubled, to create apocryphal variety, and, as regards geometric colouring, might any day be beaten by a sixpenny kaleidoscope. Scene-painters are familiar with the fact that once upon a time Her Majesty's Theatre was newly decorated at an enormous expense with a peculiar orange-coloured tapestry that had to be removed instanter, so offensive was it when the full blaze of the gas-light fell on the ladies' dresses. Yet the colour in itself was glorious; its only failing was in being out of place. As a rule, leaf-bedding is not suited to the private garden; one great argument against it is its monotony, for variations of design do not impart to it the freshness that we find in flowers; and, indeed, as to design of every kind within the range of possibility, it is of comparatively little consequence in garden colouring. And, as to the range of colour, it is contracted, although we have hundreds of plants suitable for leaf-colouring, from the cheap and terrific Beets and Perillas to the delicate and effective Alternantheras and Iresines.

SEEDLINGS AND GOOD VARIETIES OF GLADIOLI.

Many of our readers know that the Gladiolus is easily raised from seeds; but it may not occur to them that crossing one fine specimen with another invariably breaks the tendency to revert to the original forms, and is likely to produce far prettier and more distinct varieties than if we permit self-fertilisation. With many plants this is a nice and rather tedious operation; with the Gladiolus it is the simplest. As the flowers are large and the anthers readily removed with the fingers, which should be accomplished as soon as they are sufficiently developed to admit them, the pollen may be applied directly from the anthers to the stigmas without mechanical aid, as soon as the trifid stigmas are ready to accept it, generally about the second day after. Gauze coverings do not seem to be necessary, because the pistil is somewhat elevated above and well prolonged beyond the anthers, allowing plenty of room for the ingress of bees without touching either. It is for this reason probably that the flowers do not for the most part form seeds. The seed-pods contain from fifty to seventy-five winged bulbets. Separate these from the cells of the pericarp, and preserve them in envelopes in a cool room in the same manner as other seeds. Sow during the latter part of May in loose rich soil. The first season's growth will consist of a single blade of grass, producing a bulb smaller than a Pea. With good fortune we may hope that the seedling bulbs will bloom the third year—a long time to wait, it is true; but it is pleasant to have one's own sorts of flowers even if less pretty than others. An original painting is more creditable to the artist than a room full of Raphaels. It is now a favourable time to look over our Gladioli, as they are blooming, and to note which of them we are becoming tired of and ready to part with, which we wish to retain for another season, and to make up our minds what particular colourings or markings we stand most in need of to complete or to improve our collection. Though the names of Gladioli have become so numerous that it is doubtful if M. Souchet himself could distinguish his own seedlings throughout the interminable list, yet typical collections may be reduced to a very small number. If we were to look upon a field of Gladioli with one of every named variety in bloom, we should see white, rose, red, deep red, and yellow as the essential colours; and it would require an inspection of individuals to determine the endless diversity of markings with which seedling propagation and cross-breeding have invested these superb plants. If, therefore, without aspiring to an extensive assortment, it is wished to have half-a-dozen specimens which should, as far as possible, represent the whole, Mr. E. S. Carman, of Bergen, writing in "Moore's Rural," advises the following:—For a white effect, Shakespeare. This is one of the earliest to bloom, and is one of the largest flowers. There are no purely white Gladioli. If we were particular to have the nearest to white, Reine Blanche might be substituted, though inferior in every other respect. For the rose, Mary Stuart. If among so many that are nearly alike it is fair to designate any one as the prettiest, we would name Mary Stuart. For the red, Meteor, bright in colour with abrupt blotches of pure white upon the lower petals. For the deep red, Addison; and for the yellow, Ophir or Eldorado. We have mentioned but five. For the sixth, Madame Heinricq, a very eccentric bulb that never flowers alike, and that so varies from season to season that we are ready to question the accuracy of the label. Its colours are several shades of red and yellow, mottled, striped, and blotched in a dissipated manner, which renders it ludicrously distinct through all its changes.

Chelsea Hospital Garden.—A good example of a mixed shrubbery border, from 200 to 300 yards long, fringed with bedding and sub-tropical plants, may be seen here. The belt of shrubs, which separates the public from the private hospital grounds, is edged with lines of Cerastium tomentosum and a golden-leaved scarlet-flowered

Pelargonium after the style of Creed's Seedling or Crystal Palace Gem, and the irregular spaces which occur between these marginal lines and the shrubs behind are filled with clumps of Polymnia grandis, Solanum marginatum, Wigandia caracasana, W. Vigierii, Abutilon braziliense, Aralia papyrifera, golden-blotched Abutilon, and clumps of purple-flowered Petunias, rose, purple, and white-flowered Stocks, Mignonette, variegated Maize, Melianthus major, and other effective distinct-habited plants.—B.

Seed of Sparaxis pulcherrima.—I have received so many applications for seed of this Sparaxis, and so many enquiries as to the mode of culture, that you will oblige me by stating that the seed will be sent to the different applicants as soon as it is ripe, which will be in about a month from this date. It should be sown in pans and not allowed to get quite dry. The young plants will appear in spring, but they will not flower until the second or third season; when large enough, each plant should be potted separately, and grown on until ready to be planted out. Probably in severe climates they may require a little protection in winter; on the west coast this plant is however, perfectly hardy, and forms strong tufts of Pampas Grass-like foliage with numerous flower-stems.—Salmoniceps.

A New Bedding Calceolaria.—I saw, the other day, in Mr. Forbes's Nursery, at Hawick, a new bedding Calceolaria of great merit. This variety, to which the name Forbes's Invincible has been given, is a perfect gem. It grows about 10 inches in height, is of a stiff erect habit, and, in every way, splendidly adapted for bedding purposes. In colour it is exactly the same as C. amplexicaulis, but the individual blooms are larger than those of that variety. But it has other good properties besides that of fine colour. Mr. Forbes grew it alongside of Golden Gem and Princess Louise, and found that it was in flower a fortnight before these varieties; while, at the time of my visit (September 25th), after the heavy rains of the previous days, I saw it one mass of flower. I have no doubt that this variety, when properly known, will take a leading position amongst our bedding Calceolarias.—John Morrison, *Minto Gardens.*

A large specimen of Yucca aloifolia.—Looking through a volume of Loudon's "Gardeners' Magazine," of the date 1837, I found a record of the flowering of an extraordinarily fine specimen of this Yucca in the open air in Ireland; the account, it is stated, together with a drawing of the plant by Mr. Bennet, was received from the Countess of Dunraven. The drawing was engraved and published with the note, the plant is described as being 28 feet in height, and the trunk girthing 17 inches at 10 feet from the ground. At 20 feet from the ground the trunk was divided into six branches, each branch terminating in a pyramid of flowers. This specimen was in flower in the gardens at Adare (county Limerick), in October, 1837. The unusual dimensions of the plant in question, and the prevalent idea that this species is so much tenderer than many of the others, induced me to unearth this interesting record.—W. B. H.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Hedychium Gardnerianum Hardy near Bristol.—This is now finely in flower here, having been out all last winter without any protection.—H. N. Ellacombe, *Bitton Vicarage.*

Coleus splendens for Bedding Purposes.—I find that this is superior to Verschaffelti. Mr. Anderson has used it at Clifton Hall this summer for carpet beds, and its effect is all that could be desired. Its colour is an intense glowing velvety-crimson.—M.

Uses of the Canary Creeper.—For covering trellises, for hanging over the sides of baskets, and for a variety of other purposes, this Creeper is invaluable. It is particularly interesting hanging over a vase in which a large scarlet Pelargonium is growing, the creeper being also allowed to twine itself up somewhat over the Pelargonium.—R. M.

The Large Pink Convolvulus.—This grew luxuriantly at the north-end corner of the Pine-apple Nursery in 1840, when I bought a plant to send to Suffolk. I understand it has become quite a weed there. It is a charming plant in suitable positions; of which none are better than lodge gate railings, where it cannot spread to the injury of other subjects.—An Old Cockney.

The Calceolaria Disease.—My experience of Calceolarias fully coincides with that of Mr. Westland (see p. 219) This year, in order to make sure that they should be well established before dry weather set in, we planted them in their permanent places in April, and protected them with branches. Yet, although all were planted, and treated alike, while the majority of beds were all that could be desired, others went off entirely.—James Groom, *Henham.*

Calceolaria amplexicaulis.—This, though in some cases discarded from the flower garden, is, nevertheless, a most useful vase plant, its shade of yellow being so pure and delicate. This morning I measured some shoots about 3 feet long hanging from the sides of a large vase of mixed plants. Tropæolum Lobbianum is a good companion plant to it, the shoots drooping almost any length. It is still the most beautiful of Calceolarias, and the most useful where its free habit is not objected to.—P. M.

Coptis trifoliata (Gold Thread).—This is a little evergreen bog-plant, 3 or 4 inches high, with three-leafleted or trifoliate shining leaves. It derives its common name from its long bright yellow roots. It is occasionally grown in botanic gardens, though it is scarcely ornamental enough for choice collections. It is used as a dye plant by the American Indians and Canadians, and has other uses. A native of the northern parts of America, Asia, and Europe, flowering in early summer, and easily grown in moist peat or very moist sandy soil.—S.

THE INDOOR GARDEN.

GUERNSEY LILIES.

The beauty of these is universally admitted; but it is even surpassed by that of other Nerines, of which I saw examples at Messrs. E. G. Henderson's the other day. When contrasted with the original, the flowers of these were larger, and of a much more brilliant colour. N. rosea, one of the rarest species in its group, was lost to our gardens for a considerable time. The first imported bulb appears to have been received by the late Dean Herbert, with whom it first bloomed, at Spofforth, in 1815. It is described as having a larger flower-truss than that of the ordinary Guernsey Lily, and also larger individual blossoms of a more brilliant rosy-red, the petals being widely expanded and gracefully decurved. This and the other varieties to which I have alluded, all thrive well in a light sandy loam, and, though quite hardy, require encouragement in the greenhouse and protection during the winter months, with an abundance of air, so as to perfect the development of their foliage. J. M.

LAPAGERIA AT MILNER FIELD.

The wreath of this beautiful climbing plant, of which we give a representation to-day, was grown at Milner Field by Mr. Titus Salt. The blossoms were the finest we have seen, and the illustration will enable the reader to form an idea of the abundance of the bloom. The plant which produced it is grown in the best fibrous peat, with plenty of charcoal and sand, the whole being well drained. It is planted in a bricked-up bed, about 6 feet long by 18 inches wide, and 2 feet deep, and at certain seasons, gets an almost unlimited supply of water. Some of the new shoots thrown out this year from the root are thicker than a man's thumb.

STRIKING CUTTINGS IN SAWDUST.

I have been in the habit of practising M. Truffaut's plan of striking cuttings in sawdust more than twenty years in the colonies, and it was known to me some time before I left England, accident being the discoverer. I casually placed some cuttings of a Cucumber, which I intended to strike for winter forcing, in a bed of sawdust that I had used for forcing Roses, Lily of the Valley, &c., for the conservatory, with a hot water-tank underneath, and these being partially neglected for a few days I observed that the cuttings kept fresh, and on examination I found them to be splendidly rooted; I therefore afterwards occasionally used it for striking cuttings, which I found invariably to grow, but I did not like it much after all, as it induced a kind of fungus to grow on the roots. However, twenty years ago, while plantsman in a nursery at Adelaide, having no other article for plunging pots in my propagating-house, I used sawdust. It again occurred to me to try my former experiment, and as soon as the newness of the sawdust was off I did so, and was so satisfied that I used it for cuttings of every description with great success. I extended my experiments still further in the Botanic Gardens, Adelaide, where I found that all ordinary plants struck root in it readily, and that I was not only able to strike all classes of stove plants in it but even Camellias, Heaths, Azaleas, Beronias, Correas, Epacrises, and indeed most of our hard-wooded New Holland plants. I must not omit to state that the sawdust was nearly decayed, with a scattering of silver sand in it 6 or 8 inches deep; I also found it necessary to keep up a regular gentle heat in order to ensure success; the evaporation from the tank below (after the sawdust is once wet) produces, with an occasional light syringing over-head, a sufficiency of moisture for the roots. For all hard-wooded plants I invariably use bell-glasses; for soft-wooded and bedding plants sawdust is invaluable as they strike in it, and are ready for potting off in an incredibly short time. I have even used it for striking Begonia and Gloxinia leaves, starting Caladium roots, Dahlias, &c., with the best results. For resuscitating old Orchids and propagating them, such as some of the Dendrobiums, Epidendrums, Vandas, &c., also butts and eyes of Dracænas laid a little below the surface, better results could not be obtained by any other mode of propagation; care being taken, as I have stated, to keep as regular and gentle a heat as possible. The temperature of the sawdust bed should be from 70° to 75°. James F. Roberts.

Horticultural Improvement Society, Victoria Street, Melbourne.

LIME-KILN HEATING.

Mr. Fish has so ably and fully entered into the details and merits of lime-kiln heating (p. 275), that little is left to be said on the subject; I should, however, be glad of an opportunity of placing on record my own individual experience of the system. For two seasons, I have had a lime-kiln at work under my own care, and throughout the whole of last winter (which, it will be admitted, was a very long and trying one for experiments) it proved a perfect success, although the chalk, which, in the absence of anything better, I was compelled to use, was rotten and worthless, being dug from near the surface of the ground. In addition, the boiler was attached to nearly double the length of piping that it was prudent to use, or that it was originally intended to heat. This kiln, with a small saddle boiler set by the side of it, to assist in heating the Vineries, and which was not much required in winter, did the whole of the work of a small village of glass, with so much certainty that a weight of responsibility seemed to have been lifted from my shoulders when the apparatus had proved its value, for I was always certain that my houses were all right at ten o'clock, and that the kiln would rise in temperature during the night. Mr. Fish states, with much force, that by selecting the best time for re-charging the kiln the maximum heat can also be measured to a nicety; and, besides this, a blaze of coal or wood may be made over the limestone or chalk, in cases of sudden and unexpected depression. This is perfectly correct, and no one need fear a frosty night if he has wood at hand. The first time I tried the experiment of burning wood when the thermometer unexpectedly run down very rapidly one night, so convinced me that I was master of the situation that I ordered a stack of wood to be kept in readiness in case of need. This I burned at intervals to keep down the coal bill; indeed, so satisfied was I that I had the means of combating frost, let it be ever so severe, that I issued a standing order that, in case of necessity, wood should be burnt on the top of the chalk. I am constantly asked why, when I am so much in favour of the lime-kiln system, I do not adopt it at Rabley, where I have chalk of excellent quality at hand, and half as much glass again as at Hatfield. To this question I answer, I should be pleased and thankful for a kiln fire, but there is one great obstacle in the way. The stoke-holes frequently stand in 2 feet of water, and the expense of blocking it out is generally a serious undertaking. Again, my houses are well heated by five boilers, and, at present, I cannot afford the expense of doing away with these for a kiln; but, if I had the opportunity of heating by a kiln, instead of the present system, I should adopt it without a moment's hesitation; for I am certain the system is an economical one, as regards fuel (even though the lime was worth nothing), when compared with the old method. Those who had the opportunity of looking into the glowing masses of fire at Garston, on Sept. 17th, were not only satisfied with, but fairly astonished at, the great heat the kiln contained, and one and all pronounced it a decided success. The pipes were most regularly heated, the temperature of the water varying from 110° to 140°, according to the distance it had to travel. This temperature, as Mr. Fish states, was recently exceeded at the boiler trials at Birmingham; yet there were some in the 500 feet trial, and also in the 1,000 feet trial, that did not exceed the temperature at Garston, notwithstanding the fires were being continually stoked, to raise the temperature to the highest point. But the temperature reached at Garston was fully sufficient for all horticultural purposes—indeed, the pipes were thoroughly hot. The Garston trials have also proved that the manufacture of gas of excellent quality may be carried on at the same time, and by the same furnaces that burn the lime and heat the water in the pipes. The remaining point is—Can we get gas and heat free of cost? In some instances, we can, and, where the material is at hand, we can get a profit; but, in no instance need a loss be dreaded—either a profit, or, at least, a saving, must be the result. I quite coincide with Mr. Fish's views, which he expressed to me at Garston, that Mr. Cowan deserves a testimonial for what he has already done to lower our coal bills, and for the very efficient manner in which he has provided heat for horticultural purposes. Edward Bennett.

Rabley, Herts.

SOCIETIES AND EXHIBITIONS.

ALEXANDRA PARK POTATO SHOW.

September 29th and 30th.

This was, in all respects, a good exhibition. Some collections of unusually excellent tubers were furnished by Messrs. Dean, Fenn, Pink, Porter, Donaldson, Farquhar, Carter & Co., Lee, Harrison, and others. Mr. Shirley Hibberd sent a collection of fifty varieties, to show the effects of his ridge system of culture on cold wet soils. In all, 1,863 dishes of Potatoes were staged, the different contributions filling four large tables.

Collections.—Nineteen collections of twenty-four varieties were staged, the best of which came from Mr. R. Dean, of Ealing, who had dishes of well-shaped medium-sized tubers, of remarkably good quality. Among these, we noted Snowflake Kidney; Prince Teck, a very even white kidney; Wonderful, red kidney; Willard, round red; Fenn's Early Market, a round white tuber, evidently of excellent quality; Rector of Woodstock, a round white kind, of fine texture; Bresee's Prolific, a long white kidney; Extra Early Vermont, a rosy kidney; Princess Louise, a pebble-shaped tuber, white and rose, having a prominent dark purple eye; Vermont Beauty, round red; Fenn's International Kidney, a superior-looking white kidney; Early Oneida, a round white variety, mottled with red; Baron's Perfection, a white kidney, flushed with rose; Salmon Kidney, a rosy-coloured long kidney of fine quality; Fenn's Onwards, round white; Early Dimmick, a large round white variety, with rather deep eyes; Lady Abbess (Sutton's), one of the most perfect and handsome of all the kidney varieties shown; Red Emperor, a very distinct round red tuber; Model, one of the finest of all round Potatoes in appearance; Cobbler's Lapstone, a well known and valuable old variety; Late Rose; Mona's Pride, something like Lapstone, and of excellent quality; Blanchard, a round, white kind, with dark purple eyes; and Fenn's English Rose, a distinct pebble-shaped rose-coloured variety of fine texture. This collection was inferior in size of tubers to some of the others; but, as regards fineness of texture and good quality throughout, a better was certainly never staged. Mr. James Pink was second with excellent dishes of his early Goodrich, Berkshire Kidney, Onwards, Wyatt's Prolific, Snowflake, Rector of Woodstock, and others, being examples of good culture. Mr. W. Jacob, Pond Street, Petworth, was third; and Messrs. Cox Brothers was fourth, both exhibitors having collections of more than average merit. In the class of twelve dishes, in which there were twenty-one competitors, Mr. Robert Fenn, of Woodstock, was first, with a dozen really excellent dishes, among which we noticed very fine tubers of Early White Kidney; Bountiful, a red kidney, of superior quality; Peter Barr, a useful round white variety; Mayor of Woodstock, a good second early white kidney; Fenn's Early Market, a round white tuber of fine texture, and with very shallow eyes; Rector of Woodstock, white; Early Border, an excellent white variety; Fenn's Graft Hybrid Perfection, a remarkably handsome white kidney; W. F. Radcliffe, a white pebble-shaped variety; Woodstock Kidney, a kind having oblong white tubers with shallow eyes; English Rose, and a long white kidney, named the Parish Clerk. In the class for twelve varieties, Mr. James Pink, gardener to Lord Sondes, was second with well-grown tubers, among which we noted Early Rose, Giant King, Myatt's Prolific, Early Goodrich, Rector of Woodstock, Bresee's Prolific, Late Rose, Snowflake, and others. Mr. Farquahar was third, and Mr. G. F. Miles, of Wycombe Abbey, was fourth.

For six tubers, a class in which there were no fewer than twenty-three exhibitors, Mr. Porter, Meldrum Abbey, Aberdeenshire, was first with Porter's Excelsior, a white pebble-shaped variety, with a fine skin; Bresee's Prolific, a kind with a white waxy skin, and shallow eyes; Snowflake, or Early King, a white waxy-skinned kidney of the Lapstone type; Porter's Hero, a pebble-shaped white; Snowdrop, a small white kidney evidently of superior quality; and Blue Prince, a dark purple-skinned variety, evidently descended from the Blue Rocks, Farmer's Glory, or Profits, as they are variously called in different localities. These six dishes consisted of small tubers; but they were superior in point of quality. Mr. John Bates, of Kingsbury, Aylesbury, was second; and Mr. M. McKinlay third, his Pioneer, Red Kidney, and Patterson's White Kidney being very fine examples of their respective kinds. In the class for six kidney-shaped varieties, twelve exhibitors competed, the best of which again came from Mr. Porter. In the class for six kidney varieties, three white and three red), Mr. J. Denyer, Beckenham, was first with Early Rose, Snowflake, Ashtop Fluke, Salmon Kidney, President, and Baron's Perfection. Mr. H. Woods, Clipstone Park, Mansfield, was second with Red Fluke, Early Rose, Waterloo Kidney, Hammersmith Kidney, Gloucestershire, and Bountiful. Mr. R. Dean was third with Fenn's Perfection, Woodstock Kidney, Fenn's International Kidney (red), Fenn's Bountiful, Salmon

Kidney, and Extra Early Vermont. In the class for best dish of of round Potatoes, any variety, Mr. Porter was first with nine splendid tubers of Porter's Excelsior, a fine pebble-shaped tuber, with shallow eyes and a crackled skin like that of the York Regents. Mr. Potts, gardener to Viscount Gage, Firle Park, Lewis, was second with fine tubers of Bresee's King of the Earlies, a pebble-shaped white variety. In the similar class for red varieties, Mr. Potts was first with Vermont Beauty, a rather deep-edged round tuber, with a fine crackled skin. Thirty-two exhibitors, competed in this class and, in most cases, the tubers were large, but deep-eyed, ill-shaped, and of coarse texture. For any varieties of white kidney, a class in which there were thirty-two competitors. Mr. W. Smith, of Petworth, was first with Hayes' Superb Kidney, a large long variety, with a fine skin. Mr. Miller, gardener, Charlton Down, Margate, was second with Jackson's Improved, a long variety, with a remarkably fine skin.

In the class for the best dish of coloured kidneys, thirty-three exhibitors staged what, in many cases, were fair examples, although, in this, as well as in the other classes, red varieties seem this year to have acquired a coarser and more irregular character than is the case with white kinds. Mr. McKinlay, of Beckenham, who was first, had very fine Salmon Kidneys, a smooth-skinned, shallow-eyed variety, of excellent quality. The second and third prizes were awarded to some coarse tubers of Late Rose, and the fourth prize was given to a dish of really handsome tubers of Early Vermont, from Mr. Potts.

In the gardeners and amateurs' class, for twelve varieties of Potatoes, twenty exhibitors sent good collections. The first prize—a silver cup, offered by Messrs. Sutton & Sons, Reading—was awarded to Mr. George Donaldson, gardener to the Earl of Kintore, Keith Hall, Inverary, N.B. In this collection were excellent tubers of Scotch Blue, Veitch's Improved Ashleaf, a fine yellow kidney; Early Goodrich, a round white tuber of good quality; Carter's Main Crop, red; Porter's Peerless, white; Yorkshire Hero, a finely-shaped kidney, with a clear yellow skin; American Early Rose; Bresee's Prolific, a round white variety; Porter's Excelsior, white; Webb's Imperial, white kidney; Early King, a pebble-shaped variety, with shallow eyes and a clear skin; and a very handsome dish of Fenn's Bountiful, one of the best of all red kidneys. This collection consisted of small tubers, the quality of which was excellent. Mr. Geo. Potts had a good collection of larger tubers than those of the exhibitor just named, but their quality was not so good. In this collection we remarked Mona's Pride, an excellent kidney; Early Frame, round; Extra Early Vermont, a rosy kidney; Lambert's Milky White, a large shallow-eyed, fine-looking kidney; Bresee's King of the Earlies, a handsome white kidney, of large size, having a very fine skin; Vermont Beauty, a large red kidney, with deep eyes; Rector of Woodstock; Sutton's Early Racehorse, kidney, white, and of good quality; Bresee's Prolific; Sutton's Hundredfold Fluke, a white kidney, banded with red; Snowflake, and Early Rose. Mr. T. Laxton also staged a collection of small but well finished tubers in this class.

For Messrs. Hooper & Co.'s prizes, offered for nine American varieties, seven exhibitors staged very good collections, among these Mr. M'Kinlay, Beckenham, was first, with very handsome tubers of Early Dimmick, Climax, Snowflake, Late Rose, Bresee's Peerless, Vermont Beauty, Nonesuch, American Breadfruit, and Early Gem. Messrs. Cocks Brothers, nurserymen, Monk's Hall, Gloucester, were second with Alpha, Climax, Carter's Breadfruit, and others.

For Messrs. Carter's prize cup, value 5 guineas, fifteen competed, among whom Mr. P. M'Kinlay was first, with twelve good dishes of the following varieties, viz., Prince of Wales's Kidney, a fine waxy-skinned variety; Lady Webster, American Breadfruit, Vermont Beauty, Nonesuch, Beckenham Kidney, Early Oneida, Snowflake, Model, Yorkshire Hero, and Early Vermont. Mr. Betteridge, of Chipping Norton, was second, with twelve fine dishes; Mr. H. Minchin, nurseryman, Hook Norton, being third. Six English and six American varieties were shown by each competitor.

In the competition for Messrs. Bliss & Co.'s special prizes for new American varieties, Mr. R. Dean was first in this class with three splendid dishes of Snowflake, one of the best of all white kidney varieties; Early Gem, a smooth salmon-skinned variety, and Vermont Beauty, a handsome round red-skinned kind. Mr. Pink, gardener to Lord Londes, Lee's Court, Feversham, was second with Snowflake, Brownell's Beauty, and Eureka. Mr. C. Ross, gardener to Charles Eyre, Esq., Welford Park, Newbury, was third with large examples of Snowflake; Brownell's Beauty, very highly coloured; and large, but rather coarse tubers of Eureka. Seven exhibitors competed in this class.

Eight exhibitors staged some fine tubers in competition for Mr. John Coutts's special prizes for three English seedlings not in commerce. Mr. R. Fenn was first with W. F. Radclyffe, a round white kind; Woodstock Kidney, and International Kidney, and Mr. R. Dean was second with Dean's First Early (Cook), a distinct and excellent round white variety; Bedfont Prolific, and International Kidney.

Miscellaneous Subjects.—A collection of eighteen varieties of Potatoes was exhibited by Mr. W. Amies, 284, Liverpool Road, Islington. These had been grown at Chiswick in soil enriched with Amies' chemical manure at the rate of 4 cwt. per acre; also a collection of three varieties grown at the Aberdeen Park Nursery on the poorest of all clay and brick soil manured with the same fertiliser. The varieties consisted of Early Rose, Sutton's Red-skin Flour-ball, Devonshire Kidney, a singularly long and irregularly-shaped tuber; White York Regent, the best of all Potatoes, new or old; Amies' Ashleaf, Extra Early Vermont, Scotch Blue, Welbeck Seedling, and others, the tubers being, in some cases, large and of good quality. Messrs. Hooper & Co., Covent Garden, sent four dishes of seedlings in excellent condition. Brownell's Seedling No. 1 is a white kidney, something like Snowflake, of even shape, and with shallow eyes; Brownell's Seedling No. 2 is a long red kidney; Brownell's Seedling No. 3 is a white pebble-shaped kidney of good texture, and very shallow eyes; Pringle's Seedling No. 10 is a red kidney, good in form, and with shallow eyes; like the other three dishes in this collection, it promises to be an improvement on existing varieties. Messrs. B. K. Bliss & Sons staged five dishes of new American varieties, among which were Snowflake, of excellent quality, having the crackled skin of the York Regent, a sure indication of its being good when cooked; Brownell's Beauty, a large red pebble-shaped variety; Eureka, a long kidney, with prominent eyes; Early Vermont, a well-known rosy variety, and Alpha, a white pebble-shaped tuber, with deeper eyes than Snowflake, and similar texture. Mr. R. Fenn, of the Rectory, Woodstock, furnished twelve dishes of seedlings, three dishes of which were of singular interest, having been dug in July, 1874; and yet, to all appearance, they were as fresh and as sound as when just raised from the soil. The varieties were Early English Rose; Bountiful, a smooth red kidney, excellent in shape and quality; and Rector of Woodstock, a round white tuber, rather small in size, but said to be excellent in every other way. Other varieties staged in this collection were George Temple, a white round first early, a small round variety for frame or pot culture, of exquisite flavour, having the additional attraction of possessing very ornate flowers; Bob-o'-day, a pebble-shaped wax-like tuber, of superior quality, recommended only for garden culture; Little Gem, a kidney resembling the true early Ashleaf, and said to be valuable as an early crop in pots; Fenn's Onward, a pebble-shaped Potato, for summer crops in gardens only, and said to be most excellent in flavour, when dug as required for use; Eliza Mary, a round white tuber, of excellent quality; and Alice Fenn, a first-rate white kidney for orchard-house culture in pots. These seedlings are only recommended for garden or pot culture where a superior, good-flavoured Potato is required. They are too small for general crop or field culture. Messrs. Carter & Co. staged a very large collection of new and standard varieties of Potatoes, also Gourds and Beet. Among the varieties we noted Main Crop, a first rate red variety of medium size; Hundredfold Fluke, a kidney-shaped white tuber, striped with red; Prince of Wales's Prolific, Bresee's Prolific, Patterson's Victoria, Early Vermont, and American Breadfruit. A fine brace of Cucumber Tender and True were staged in this collection, and a very large Mammoth or Orange Gourd, weighing 60 or 70 lbs. Messrs. Harrison & Sons, seed growers, Leicester, staged a large and excellent collection of English and American Potatoes. Messrs. J. & C. Lee, of Hammersmith, had a large and excellent collection of large tubers, including many of the new and most of the well-known and well-tried varieties. Among these we noted excellent samples of Lapstone, Prince of Wales, American Rose, Lee's Hammersmith Kidney (evidently an excellent variety, similar to Lapstone), Sutton's Flour-ball, Climax, American Late Rose, Myatt's Ashleaf, Rivers's Ash-top, and others. Mr. Shirley Hibberd's collection, to which we have already alluded, consisted of fifty dishes, which, though grown on cold undrained clay, were perfectly free from disease. They were grown on the ridge system, and produce 15 tons to the acre. Mr. B. S. Williams furnished an interesting collection of flowering and fine-foliaged plants.

Physianthus albens (p. 268).—This is perfectly hardy against a wall. I have known one for many years on a house here. Though never protected, it flowers abundantly and ripens its curious fruit.—H. N. Ellacombe, *Bitton*.

The Best Bedding Calceolarias.—I find Yellow Gem to be the best of the deep yellow kinds for withstanding unfavourable weather, scarcely any plants of it having gone off this season. Amplexicaulis is the best sulphur-yellow.—W. Whitaker, *Crewe Hall*.

Rhynchospermum jasminoides hardy.—Will you kindly say if this plant is hardy enough to plant out-of-doors in Oxfordshire?—T. P. L. [We have noticed this favourite greenhouse climber thrive in the open air round Paris and also in Devonshire. Probably it would succeed in many of the milder parts of the south of England against walls and in free, well-drained soil.]

Thrifts and Sea Hollies.—I have strong plants of Armeria splendens and Eryngium cœlestinum, the produce of seed sown in the open ground last April; will these stand the winter unprotected, or would they be better lifted and wintered in a cold frame.—J. B. L. [The Armeria sometimes perishes in winter in cold soils, but the Eryngium is hardy everywhere.]

The Damson Crop.—Damsons, which are extensively grown in Cheshire, are a heavy crop this year, chiefly owing to the absence of frost during their season of flowering. They are being sold about Crewe at four shillings per bushel.—W. Whitaker, *Crewe Hall*. [Large varieties of Plums were sold this year at very much lower prices in the London market.]

Knight's Monarch Pear.—Do any of your readers find that this Pear drops prematurely? Trees of it, apparently in good health, here shed their fruit very much during August and September—perhaps more this year than usual, but in all seasons, more or less. Is this an inherent fault of this Pear?—W. Bradley, *Preston Hall, Maidstone*.

Early October Pears.—The Pears that are now fit for table use with us are. Beurré d'Amanlis, Beurré Hardy, and Fondante d'Automne. All three are really good bearers and extremely useful, but for flavour nothing comes up to the last-mentioned, which certainly is the Prince of autumn Pears.—R. Gilbert, *Burghley*.

Large Catalpas.—The oldest trees of this kind are at Sunbury, and Gray's Inn Gardens. They were very handsome when last I saw them. It is, as stated in The Garden, a precious tree for town gardens, flowering in London better than any tree I know, not excepting the Horse Chestnut.—An Old Cockney.

Pear-leaf Fungus.—Will you kindly name the insect that has attacked my Pear leaves. The tree is very much affected and has borne no fruit this season.—C. Richardson, *Perryfield*. [What you complain of is not the work of insects, but of a minute Fungus named Rœstelia cancellata. You are rather late now to take any steps for prevention against its re-appearance next year. If you had plucked and burnt the infected leaves at an earlier stage it might have done some good.—A. M.]

No. 203.] SATURDAY, OCT. 9, 1875. [Vol. VIII.

> "This is an art
> Which does mend nature: change it rather: but
> THE ART ITSELF IS NATURE."—*Shakespeare.*

GRAPE GROWING FOR MARKET.

THIS is looked upon by many as merely a matter of pecuniary profit, but the fact really is that in the neighbourhood of our large towns there is a vast amount of practical, and not a little scientific knowledge displayed by those who grow fruit and flowers for market. How is it, we may ask again, that if we wish to see examples of really profitable and intelligent culture combined, we have to look to the private cultivator and, in many cases, trade cultivator—rather than to our public gardens? Is it not possible to so organise a national garden that it shall, in a financial sense, be self supporting, and a school of gardening in the highest and best sense? In this matter England is at least a quarter of a century behind most of the continental nations and the United States, where the dissemination of horticultural knowledge is a matter zealously taken up by the respective goverments who see no injustice in conducting experiments that are of public importance, at the public expense. Here, on the other hand, the best results in every department of horticulture, are obtained by private enterprise, and in many cases by those who are but too often looked down upon as being only growers for market. A week or two ago we directed attention to one of the largest and best managed plantations of hardy fruits near the metropolis, that of Mr. Dancer, at Chiswick, and we now wish to allude to one of the finest glass sheltered Vineyards in the country, viz., Mr. W. Thomson's extensive range of Vineries at Clovenfords, near Galashiels, only a few hundred yards from the banks of the sparkling salmon-tenanted Tweed, and within rifle-shot of the classical ground where the great "minstrel of the north" wrote "Marmion" and "The Lady of the Lake." At the time of the great Edinburgh fruit show, Mr. Thomson invited us to inspect his Graperies, and we accepted his invitation, with the full expectation of seeing a few hundredweights of fine Grapes. Nor were we disappointed, for we found some of the best crops of Grapes we have ever seen; and, when we inform our readers that Mr. Thomson grows two or three tons annually of the finest late varieties, for the supply of the London and other markets, it will serve to give them some idea of the able and intelligent culture there displayed. The three principal Vineries here are each 200 feet long, 24 feet wide, and about 26 feet in height, with 24-feet spaces between, connected by a corridor 126 feet long and 25 feet wide, ventilated according to Beard's patent, by which the lights on either side are opened, or the top ventilators lifted, throughout their entire length (200 feet), by a simple wheel and pully, combined with an equally simple screw arrangement. And, besides the above, there is another separate Vinery of the same dimensions, three Pineries 200 feet long and 5 feet wide, another 121 feet long and about 14 feet wide, and a third 200 feet in length, together with several other plant and Cucumber-houses. Nearly the whole extent of glass here is heated by 7,750 feet of 4-inch piping, and the circulating power for the great weight of water these contain when filled, is supplied by a couple of wrought-iron horizontal steam boilers, made to order from Mr. Thomson's own designs, the largest of which is 20 feet in length, and nearly entirely exposed to the action of the fire. One house here is planted entirely with Lady Downes, and at the time of our visit (September) the great shapely, large-berried clusters were literally as black as Sloes, and averaging about 1½ lb. each. Mr. Thomson calculates the produce of this one house to be about 2,000 lbs. weight of fruit, or nearly 18 cwt. This weight of fruit is remarkable; but what we most admired was the high average quality of the entire crop, the first Vine being a correct index to all the rest, and the size of berry was even more remarkable than the size of the bunch, although some of the clusters would turn the scale at 3 lbs. Until this year the permanent Vines have alternated with temporary supernumerary ones; but these were removed after the last season's crop of fruit was cut, and the splendid wood and healthy foliage these permanent canes have this year made auger well for a large increase in the weight and quality of the produce another season. There is a second house of Lady Downes, which also carries a very fine crop, although the total weight of fruit is a little short of that given above; and a small lean-to house, put up to utilise the back wall of the foreman's cottage, also contains a considerable number of good bunches, the variety here, also, being Lady Downes. We next come to a span-roof house, full of Gros Colman and Black Alicante, planted alternately on both sides; and, as an example of Grape-growing on an extensive scale for market, this house and the first house of Lady Downes stand unrivalled; nor are we alone in this opinion, for this much was unanimously expressed by some twenty or thirty noted horticulturists, with whom we had the pleasure of associating at the time of our visit. The Vines in this house carry, collectively, 1,627 clusters, the total weight of which is computed at 3,000 lbs., or something over 26 cwt., and these were just finishing their colour and bloom. The Alicantes were, indeed, in many cases, jet black, with those odd green berries here and there which show, to a practised eye, that the Vine is vigorous, and able to put the last touch of colour into the skin of the fruit it bears. The length of rod in these houses is about 18 feet, and from twelve to fifteen bunches are borne on each, so that, when one stands at one side of the house and looks diagonally across it, the clusters look nearly as thick as pebbles on a pavement. Notwithstanding the great weight of fruit borne by these Vines, their source of nutriment, as far as we could see, is merely a good healthy border of fibrous loam—genuine loam from the uplands, fresh as the Heather and as the air that sweeps over it. This enables them to bear their load easily, and make a luxuriant short-jointed growth as well. The borders here are perfectly under control, being inside the house, and these receive copious waterings by means of a perforated pipe, from which the water can be turned on when required, so that no labour is wasted on this part of their culture. It is tolerably certain that, if this example was followed, and the hose was generally substituted for the watering-pot in our indoor fruit gardens, we should hear less of Peaches failing to stone properly, or of Grapes shanking and refusing to colour. In addition to the Vineries above mentioned, the produce of one house (which runs at right angles to the principal range, and thus acts as a corridor) had been cut at the time of our visit, and a house of Muscats was colouring well. One or two little cultural details struck us here as interesting. Instead of evaporating pans on the pipes, common Sphagnum Moss placed between them is found to answer even better, by diffusing more moisture in a given time, and it is easily kept moist by damping it once or twice a day with the hose. The operation of thinning the bunches on the Vines, and the berries in each bunch, is here brought to something like perfection, for we did not see a cluster in the whole place that would not lie firmly and shapely on a plate, nearly as firm, indeed, as if modelled in wax; and this is one of the principal points in growing Grapes for market, as the bunches not only travel better, but look better, and, consequently bring a higher price than when weak and loose, for it is a well-known fact that any fruit which looks well sells well, irrespective of flavour. The thinning process, we may mention, is facilitated by a pair of large A-shaped steps fitted at the foot on either side, with small wooden wheels or rollers; and a tramway, for these to travel on over the border, is formed of long planks, which allow the steps to travel forwards or backwards readily, and also prevent any accidents from slipping laterally. It will have been observed that we have only mentioned three varieties of Grapes, and these three form the main crops grown here, as Mr. Thomson does not profess to grow early Grapes, but late kinds of really first-class quality and appearance. Some two or three of the houses are temporarily filled with vigorous pot-Vines, among which we noted Duchess of Buccleugh, Duke of Buccleugh, Golden Champion, Gros Colman, and others. Clovenfords is a long way from the Central Avenue of Covent Garden, and some little care is requisite in packing the fruit for a journey of 200 or 300 miles, during which it is subjected to the rough handling of railway porters. The Grapes are cut from the Vines, and packed in flat baskets or trays about 4 feet in length by 2 feet 6 inches in width, and something like a foot in depth; as we have before stated, the bunches are firm, and they are packed closely together, so as to prevent any shaking. No packing material is employed beyond a shred or two of soft tissue-paper between the basket or tray and the fruit. Two of these trays fit exactly into a strong box, the top tray resting on the lower one, while the lid of the box serves as a lid to the upper tray, and so packed they travel without any material injury. The boxes are met at the London terminus by the salesman to whom they are consigned and unlocked at once, the fruit examined, and if perchance, as once happened, the box has been upset, the damage is at once reported to the railway officials, and compensation recovered. B.

MOUNTAIN VIOLETS.

The scented favourites of the streets of Paris and London, in early spring, belong to a family of flowers, many of which are Alpine, and some of which are among the most beautiful ornaments with which the Alpine turf is bedecked. The common Violet, indeed, may almost be claimed as a true Alpine plant itself, for it wanders along the hedge-row, and hill-side, and copses, and thin woods all the way to Sweden. And it is only a mountaineer in constitution that can, in spite of the bitterly cold winds that every spring sweep over the woods and plains of Europe and northern Asia, stain the dead leaves in the copse with purple, and fill the air with perfume before a green bud has opened. Among the Violets, as among many other families, it is impossible to divide the true Alpine species from those that haunt the plains, heaths, woods, copses and hedges, bogs, hills, meadows, and sandy shores. From all, the wild world of flowers and our gardens derive a precious treasure of beauty and delicate fragrance. There are, it is true, some inconspicuous species without distinct attraction for the garden, but, on the other hand, there is no family that has given anything more precious to our gardens than the numerous races of Pansies, and large, showy, as well as sweet-scented Violets. Far above the faint blue carpets of our various scentless wild Violets, in woods and heaths, and thickets and bogs, the miniature Pansies that find their home among our lowland field weeds; the larger Pansy-like Violas (vars. of V. lutea) which flower so richly in the mountain pastures, and even on the tops of the stone walls in northern England; above the large and free-growing Violets of the American heaths and thickets we have the true Alpine Violets, like the yellow two-flowered Violet (V. biflora), and large blue Violets like V. calcarata and V. cornuta. It would be difficult to exaggerate the beauty of these Alpine Violets. I have repeatedly, in very high spots of the Alps, in early summer, when the abundant Gentians were in the glory of their first blossom, turned from them to admire the more unspotted loveliness of the blue Violets. They grow in a turf of high Alpine plants not more than an inch or so high. The leaves do not show above this densely-matted Alpine turf, but the flowers start up, waving everywhere thousands of little banners over the turf. Violets of all kinds are of the easiest culture in our gardens; even the highest Alpine kinds thrive with little care, and V. cornuta and calcarata of the Alps and Pyrenees thrive not only freely, but much more so than in their native uplands, the growth of the foliage and stems being much stronger in our gardens. Some of the many varieties of the Sweet Violet raised of late years might be naturalised with advantage, being of stronger growth. They and the stronger-growing American kinds are likely to prove very useful in the wild garden. Slow-growing compact kinds, like the American Bird's-foot Violet, enjoy, from their stature and comparative slowness of growth, a position in the rock-garden or choice border, in which, however, they are of easy culture in moist sandy soil. V.

Linum monogynum.—A beautiful kind with large pure white blossoms arranged in corymbs and blooming in summer. It has been well named, for the styles cohere throughout almost the whole of their length. It grows about a foot high in good light soil, and its neat and slender habit renders it particularly pleasing and well adapted for rock-work borders or pot culture. It may readily be increased by seed or division; is hardy in the more temperate parts of England, but in the colder portions it is said to require some protection. A native of New Zealand.—T. S.

NOTES OF THE WEEK.

—— We propose publishing in The Garden an enumeration of all the interesting gardens in each county in England, beginning with Kent. We hope also to give a concise description of each—sufficient to point out what are the most remarkable or instructive things to be seen. As the preparation of such an account of Kentish gardens is one which we ourselves could but very imperfectly accomplish, we shall be greatly obliged to any correspondents who will aid us with information as to notable or well-managed gardens—no matter how small. We shall meanwhile try to see as many as possible of the gardens in this "garden of England."

—— Marechal de la Cour is a superb Pear for the colder districts. In Mr. Reynolds Hole's garden, at Caunton, it has proved the best of all autumnal Pears yet tried. It is grown against a wall in a cold situation, and in a heavy soil.

—— The graceful Helianthus orgyalis, often recommended as a hardy herbaceous plant, suited for grouping with those having fine leaves, is now in blossom. It is a very desirable plant for the wild garden, being of a remarkably distinct and graceful habit, as well as very hardy and vigorous.

—— One of the loveliest of our autumnal flowers is the Wind Gentian (Gentiana Pneumonanthe). We were pleased to see it in abundance on a Kentish heath, the other day, and trust it may not be exterminated by wild flower competitors at local shows. It is a fine plant for the rock-garden.

—— The freshest-looking and gayest hardy flower in the borders at Caunton Manor, at present, is the dwarf rosy Aster, known as A. longifolius formosus. It is about a foot high, and bears dense masses of rosy-lilac flowers, which are very showy at a distance. It is a precious addition to the hardy flowers that bloom with the Pampas Grass.

—— We have often to point out the merits of new hardy flowers in "Notes of the Week," and sometimes we are apt to declare them to be the fairest flowers of their season. This week, we think the palm belongs to the common Honeysuckle, the late, but quite fresh blooms of which garnish the hedges here and there. It should more often have a place in the wilder parts of gardens.

—— We have before now called attention to the beauty of Siebold's Stonecrop when grown as a vase plant in the south of England. The peculiar stony hue of the leaves, and delicate rose of the blossoms which appear in autumn, make it seem most happily placed when filling a small classic vase in an isolated position. In cold soils, it often makes a short stunted growth; but, planted as above described, it grows to a height of a foot or so. For small baskets in the greenhouse, it is also worth attention.

—— We hear less now-a-days than of old of the degeneracy of our hardy fruits. The finest Ribston Pippins we ever saw in England are now selling abundantly in Kent; they are much larger than those usually seen in the London market, and of a rich and high colour, very nearly as brilliant as the Ribston we saw in Ellwanger & Barry's famous nursery in western New York. There, under greater sun-heat than we have, but in rich fertile loam, the Ribston trees are splendid with large brilliantly-coloured fruit.

—— Among the brightest of all autumnal-flowering hardy border or rock-work plants must be classed the hardy Heaths, such as Erica herbacea, the white variety of E. carnea, Calluna vulgaris, C. v. Alportii, and others. All the above are now blooming freely in the Botanic Gardens, Edinburgh; but the two last named are fresh and green, and each studded with such a multitude of little pink bells, that they deserve more than a passing notice. St. Daboce's Heath (Menziesia), one of the most lovely of all plants, bearing pink, white, and striped flowers, and its pure white-flowered congener, M. polifolia alba, are also exquisitely beautiful. Pernettya candida, a low-growing white or purple-berried shrub, is also now very pretty, together with some large tufts of Polygonum vacciniifolium, one of the best of autumn-flowering plants for rock gardens or rock-work.

—— Mr. John Latimer Clark, writing to us on the 4th inst., says:—About half the Horse Chestnut trees in the Boulevards of Paris, and in the Champs Elysées, are, at the present time, in bright green leaf, and covered with flowers, as if it were spring time. On looking closer at them, it is seen that some of them have only half the branches clothed in flowers, and others have only a single branch, or a single spray, the rest of the tree being either entirely leafless, or clothed with a few withered and shrivelled old leaves. Other trees growing beside them are in ordinary vigorous health. It is evident that the trees have suffered a severe check from frost, or other causes, and have lost their leaves, and put forth a second crop out of season; while the healthier trees have been only partially or not at all affected. The effect is very pretty at this season, but must be very disastrous to the trees, as the tender leaves will be cut off by the autumn frosts, and the trees will lose all reckoning as regards the seasons.

THE INDOOR GARDEN.

INDOOR CHRYSANTHEMUMS.

Now, when Chrysanthemums are coming into bloom, a few words respecting them may not be uninteresting. It matters little whether the plants are trained to a single stem, formed into a bush, or tied down flat on trellises—a plan by no means to be recommended—the following general rules must be observed if the best results are to be secured:—First, there must be no crowding of the plants together; on the contrary, each plant should stand clear and distinct, with the full light shining upon it, and without the branches of any two plants touching or shading each other. To effect this, the best plan is to plunge the plants, about half the depth of the pots, in rows a sufficient distance apart to admit of a man passing between them without injury to them. Care should be taken that they do not root through the pots; if they do so the check they sustain will be very injurious to the development of the flowers; therefore, to prevent this, it will be necessary to move the pots once, if not twice, a week. Secondly, the plants should be trained without further delay; that is, to each branch should be placed a neat stake in as inconspicuous a position as possible, and the ligatures should be neat, but not tight. Thirdly, water must be supplied so that the plants never know the want of it—that is, they must never flag—and manure-water may be given twice a week without the slightest fear of injury. In hot weather watering overhead with clean water may be practised morning and evening, taking care not to spare the quantity in the evening. Of course, as the plants make vigorous growth from April to the first week in July, the longest shoots must have their points taken out to make them bushy, and, in the course of time, the most forward kinds will begin to show their flower-buds. To have these of the finest quality perfect maturation of the growth is absolutely necessary, for, without ripe wood, there can be no fine flowers. Nothing is more common than to hear even good cultivators exclaim, "What splendid flowers you have got; my plants are much larger than yours, but the flowers are comparatively small." This arises from the wood not having been thoroughly ripened. All Chrysanthemums produce many more flower-buds than they can bring properly to maturity; hence, it is necessary to reduce the number so as to concentrate the energies of the plant in such bloom-buds as are retained. These, if very large blooms are desired, may be two, or even six, or more if the plant is large, or for decotive purposes two or three buds may be left upon each branch. Select those most favourably situated for display, and then remove the others, as soon as you can get at them, with a penknife or a pair of fine-pointed scissors. The sooner the buds are removed after they are formed, the finer those retained will become. As the days shorten, the supply of manure-water must be decreased in strength, if not in quantity, and, as the flowers begin to show colour, it should be withdrawn by degrees altogether. The best place for Chrysanthemums to show off their bloom is in a free open greenhouse. The plants may be taken indoors upon the approach of frost; but, beyond protecting them from it, or cold cutting winds, the plants should be kept as cool as possible throughout their blooming season. Should mildew, greenfly, or thrips affect them, dust with sulphur, or fumigate. In thinning the flower buds, discriminate between the large and medium-flowered varieties, and also between the latter and the Pompons, and thin accordingly. Follow these directions, and fine flowers must be the result. H. Cannell.

Rubus rosæfolius.

COVERING BARE SURFACES IN PLANT-STOVES.

Generally speaking there are of necessity unsightly surfaces in all houses devoted to the culture of plants in pots; the pots themselves are an eyesore, and any arrangement which can cover up these unsightly objects and transform them into surfaces pleasing to the eye is desirable. There are few things more harsh and unsightly (says Mr. Thomson, in "The Gardener") than a number of pots standing on a stone bench, even when a layer of spar or gravel is placed over it; but so long as such a number of moveable plants are required for so many different purposes, as is the case at the present time, plants in pots are a necessity. We have tried many ways of hiding such surfaces, and the most pleasing and effective method of accomplishing this is to put a margin of Portland cement about an inch deep round the outer edge of the stone shelves, and fill up to the level of this margin with clean-washed gravel that will pass through a ¼-inch sieve. In this, cuttings of the beautiful Fittonia argyroneura are inserted, about 6 or 8 inches apart, all over the surface—putting a thicker row at the edge next the passage. This is done early in spring, and the cuttings soon root and cover up the whole space with the most luxuriant and beautiful silver-veined foliage, which soon hides pots of ordinary dimensions, and forms a charming under-growth, that sets off to the best advantage the plants that are placed on it. A few cuttings of Panicum variegatum are put in the front line, and this soon hangs down to the pathway. On surfaces where it does not hide large pots, it is still a great improvement as a groundwork on dead and often dirty surfaces. Plenty of moisture, and an occasional watering with guano-water, ensure a most luxuriant growth of large leaves. When it is necessary to re-arrange the plants in pots, the Fittonia may be moved aside like a fleece, and an opening can be made anywhere for a pot. As a groundwork underneath Pitcher-plants, which require so much moisture, it forms a beautiful arrangement, which can be renewed yearly with very little trouble, and is the means of saving much labour in keeping dead surfaces in moist warm houses clean and tidy.

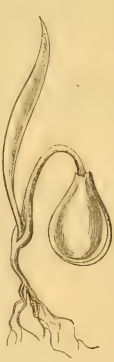
A FRUITING STOVE SHRUB.

(RUBUS ROSÆFOLIUS.)

This plant, which is a native of the Moluccas, bears rosy flowers all through the winter months, and these are afterwards succeeded by globular Raspberry-like edible fruits. It has been introduced into Belgian gardens by M. Louis Van Houtte, and is said to grow freely in a moderately warm stove temperature. As will be seen by the annexed engraving, the plant is not inelegant in habit, and even if its fruit should not prove to be of any great value, it is well worth growing for ornamental purposes alone. B.

GERMINATION OF YUCCA SEEDS.

It may be worth while to illustrate, as addenda to the papers of Mr. Hemsley and the Rev. Mr. Ellacombe, the curious manner in which the seeds of Yuccas germinate. Instead of throwing up the plumule from the apex of the seed, and pushing the roots downwards, as in most Dicotyledons, Yucca seeds, in common with those of Palms, Clivias, and many other Monocotyledonous plants, throw out a long curved neck-like growth, the swollen end of which contains the embryo; and after the neck has attained the length of about an inch, more or less, the embryo throws up a leaf and pushes down root fibres nearly simultaneously. Cyclamen seeds germinate in much the same way, and this is the only instance of a Dicotyledon germinating in this curious manner that I can just now remember to have seen. With respect to seeds of this description, the question naturally arises—why is the embryo thrown out of the seed before germination has taken place? Naturally, as we know, seeds are scattered on the surface of the soil; and this is undoubtedly one of Nature's ways of burying the embryo, and, until it forms roots and leaves, it is nourished by the feeding-bottle-shaped mass of cellular matter, which remains on the surface of the soil. We have instances of plants which bury, or attempt to bury, their seeds, such as Trifolium subterraneum, all the Cyclamens, Arachis hypogæa, and others, and in the case of Yuccas and Palms this power seems vested in the seeds themselves, or rather in that portion of the seed which represents the young plant. It seems probable to me that the seeds of Yuccas and Palms are especially fitted for germination in dry or barren soils, inasmuch as where soft seeds, which vegetate in the ordinary manner, would be dried up, these are protected from drought by a hard horny coat, and have the power of throwing out the embryo and of pressing it down into the soil, while, at the same time, it is amply fed by the albuminous pabulum stored up under the seed coats until the roots can strike down deep enough to draw up food and moisture. The most singular point in connection with Yuccas, however, are the facts collected by Professor Riley, of St. Louis, from which it appears that Yuccas are entirely dependent for fertilisation on insect agency, the operation being performed by a lepidopterous insect, to which Mr. Riley gives the name of Pronuba yuccasella. This little insect carries pollen and fertilises the ovary, and, at the same time, lays its eggs in the young fruit. An illustrated account of the fertilisation of the Yucca appeared in The Garden, Vol. III., p. 499. F. W. B.



Yucca germinating.

Edgings of Lycopodium.—Nothing is more objectionable in conservatories or plant houses, than bare patches of earth, such as occur when the drip from shelves or staging makes it a difficult matter to keep any sort of vegetation in good condition. Under these circumstances I have found the following simple method to be the best for keeping that loveliest of green carpet plants, Lycopodium denticulatum, in good condition for a lengthened period. After laying a good coating of light porous soil over the bed or edgings that it is intended to cover I insert plants of the Lycopod about 1 foot apart, and cover the space between them with clinkers from the furnaces. The Lycopod quickly covers the entire surface, and this being so well drained, the plant flourishes amazingly without damping off as it does if resting on the soil itself. —J. Groom.

Panicum variegatum.—This pretty green and white leaved trailing stove plant looks well associated with any of the dwarf green Selaginellas. When placed in small pots, and allowed to grow and hang over the sides of shelves, stands, or baskets, for a foot or 18 inches, it has a very effective appearance. The points of the shoots root freely in sandy soil, without any bottom-heat; and the plants themselves luxuriate in a mixture of loam, peat, and sand.—M.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Flower Garden.—As long as frosts keep off everything should be done to maintain the flower garden in as good order as the advanced season will permit of. Every week that it can be kept in fair condition is so much reduced from the long blank period that this description of gardening involves. Keep the Grass mown and edged, the walks clear from weeds and rolled, so as to present a smooth, firm surface, and the grounds generally clear of leaves, which are now beginning to be troublesome. Herbaceous plants that require it should be tied up and the ground hoed and raked clean. The present is a good time to note where any addition may be made with advantage to autumn-flowering subjects. The Pampas Grass, both male and female, are effective plants, backed up by shrubs and trees, yet they are seldom found growing together—a circumstance greatly to be regretted, inasmuch as they are so distinct as to mutually improve the appearance of each other. Few pot-plants are more desirable than the common Hydrangea when grown in 6 or 7 inch pots. With a little heat it can be had in flower early in the spring; and, if sufficient plants are at hand, a succession may be kept up through a good part of the summer. There are several ways of preparing Hydrangeas for use in this manner. Anyone desirous of thus growing them can do so by at once getting a supply of young shoots from plants that are out-of-doors. Select such as are furnished with flower-buds, taking them off at about four joints below the points, and inserting them singly in 3-inch pots, drained and filled with sandy loam; plunge them in a moderate hot-bed with a bottom-heat of 70°, allowing them to have a little air so as to keep the top comparatively cool. Thus situated they will root in a very short time, when the bottom-heat may be allowed to gradually subside. Keeping a little air on prevents the buds from starting at once into growth, and thus defeating the object in view. As the pots become filled with roots they may be shifted into those in which they are intended to flower, and should be kept in the greenhouse until they are required to be placed in heat to bring them into bloom. Those who grow Grapes in the house in which they winter a mixed collection of greenhouse and bedding plants, must be careful not to injure such fruit as may be still on the Vines; for most probably the Vines will be late ones—started with sunheat in the spring. The advanced period of the season necessitates the plants being brought indoors, and this, with the water required by them afterwards, is calculated to produce mould in the Grapes. Therefore, until the latter are used, such plants as Cinerarias, Calceolarias, Primulas, and bedding plants should, if possible, be kept in pits and frames, and, if the weather is damp, the Grapes will be benefited by a fire being lit in the morning two or three times a week, letting it go out sufficiently early for the pipes to get cold before closing up the house in the evening. Unless when there is an appearance of frost at night, a little top-air may be left on. In such a house it is not advisable to attempt to keep Grapes longer than can be avoided.

Beet.—This should now be taken up, the operation being performed with care, as the slightest injury to the roots will cause them to bleed, after which the fine dark colour so much esteemed is lost; they, on this account, should not have the tops cut off close, as with many vegetables the leaves are better twisted off by the hand; a dry day should be chosen, and the roots allowed to remain on the ground for a few hours before taking them to the root-shed, in which place they may be allowed to remain for some days, previous to their being placed in dry ashes, when they should be piled up in layers in the same way as that recently recommended for Carrots. The latest crop of Carrots will now be ready for taking in.

Planting Cabbages.—Another batch of summer Cabbages should now be planted; it is much better practice to plant twice, at intervals of about a month, than to make only one planting. If all goes well with those that were put out the earliest, they will be considerably in advance of such as are planted now, and it is desirable to try to have some ready as soon as possible in spring, otherwise, there will be a blank between the late Greens and the first Cabbages. There is, besides, another contingency to guard against—the earliest-planted Cabbages take hold of the soil and commence growth whilst there is a good deal of heat in the earth, and also in the air; this makes them grow freely, and, in this state, they are liable to suffer should a severe winter follow. The second batch put in, although they will be a fortnight later in the spring after a mild winter, are much better able to resist the effects of a severe winter of long duration or the more trying vicissitudes of vegetable life—alternate frost and thaw. When these occur it frequently happens that few of the first crop of Cabbages escape; whereas, such as were planted somewhat later suffer comparatively little. At this time they should be put in as advised for the first batch, 2 feet being left between the rows for both early and late kinds, the former 9 inches apart in the rows the latter 12 inches. A little soot and lime mixture should be applied to the roots of each plant at the time of putting out. Another batch of hardy green Lettuce should now be planted out in a well-prepared piece of ground, that is also warm and dry, as their successful growth can scarcely be a certainty except under these conditions. The August-sown Cauliflowers will now be ready for putting into their winter quarters; for those that are to come in the earliest hand-lights are the best, as, when planted under these in the situations in which they are to remain, they do not require to be moved in the spring, as is the case when they are put in an ordinary garden frame for the winter. A hand-glass of the usual size will accommodate nine plants, five or six of which can, in the spring, be removed to the open ground. The ground should be well dug and enriched with manure, after which the lights should be put down, a space of 2 feet being left between them, and each light should be pressed down upon the soil so as to mark the position the plants are to occupy. The latter should be put in 3 or 4 inches from the sides of the lights, dividing the space amongst them. Put in a little soot and lime to each, as recommended for the Cabbages, and dust the ground over if it is infested with slugs. Do not put on the lights until there is a probability of a sharp frost, as a certain amount of exposure renders the plants strong and capable of withstanding the cold of the winter. If there are no hand-lights available an ordinary one or two-light garden frame must be used. This will be all the better for being shallow, as a deep frame has a tendency to draw the plants up weakly. If the ground is heavy, dig in any light material, such as old potting soils of a sandy nature, or leaf mould, as the plants will move from it with better roots in the spring than if it was of a retentive nature; put in some manure, mixing it well with the soil. The plants should be placed 6 inches apart, and the surface dusted over with the lime and soot mixture. A narrow strip of ground should also be prepared at the foot of a south wall, on which some Cauliflowers and Cos Lettuce may be pricked out. The latter may be put in at from 6 to 10 inches apart, according to the size of the plants. In the southern parts of the kingdom they will stand, with a little protection, in frosty weather, unless the winter be exceptionally severe. Here, also, dust well over with soot and lime. A frame should now be got ready, in which to sow Cos Lettuce for planting out in spring; an open light situation ought to be selected for this, raising the frame at the back, so that the glass may slope considerably, to prevent drip, as success in keeping these late-sown Lettuces through the winter depends upon the surface being quite dry, otherwise, in severe weather, when the frame has to be kept closed, sometimes for weeks together, the plants are sure to damp off. It must face the south, and be filled with soil to within 6 or 8 inches of the glass, with some light moderately dry earth on the top; in this sow the seeds broadcast, sufficiently thick to allow for failures. If the soil is too dry for the seeds to vegetate, sprinkle with water, but use no more than is necessary. The light should be put on until the plants are up, when it ought to be drawn off on fine days, and tilted when there is any likelihood of rain, so as to keep them dwarf and strong. These autumn-sown frame Lettuces require a good deal more attention than any others during the year; but, where a continuous supply is wanted, they cannot be dispensed with, as their absence would cause a void between the earlier autumn-sown crops that come in the first in the season and the earliest spring sowings.

The Flower Garden and Pleasure Grounds.

The season is now so far advanced that a hard frost may any night prove fatal to many of the plants of which the various groups in the flower garden are composed, so that it will not be advisable to allow subjects, which it may be intended to preserve, to remain longer exposed to the weather. In some cases, a reluctance may be felt to disturb the arrangement of the garden while its beauty remains but little impaired. And in all such cases, it will be advisable to have in readiness some protecting materials, which could be readily applied in the form of a covering to rare or tender plants, should the weather give any indications of a sudden change. As soon as it is found that such plants cannot, consistently with their safety, remain longer in the beds, they should be carefully taken up and potted; and it is of importance that this should be done before they have been seriously injured by frost. The plants should then be placed in some light glass structure, where they can have the benefit of a gentle warmth to start them into moderate growth, for, if they are merely placed in a cold pit, many of them will probably succumb to cold and damp. The various kinds of variegated Pelargoniums should be carefully pruned back and potted; and somewhat small pots should be used for this purpose, whilst the soil used should be light and moderately rich. Young plants, or plants which have been bedded out during one summer, will generally be found to make the best stock for bedding out the following season, although older plants may be used if the variety is scarce, and, where such is the case, cutting back may be delayed until spring, when the portions cut off may be formed into cuttings. Autumn-struck cuttings of most of the green-leaved Pelargoniums are generally preferred to old plants taken from the beds; but these may be preserved, if found necessary, and after being well cut back may be potted, or planted tolerably close together in shallow boxes or pans of moderately dry soil; a very considerable number of plants can thus be wintered in a small space. Cuttings of the various kinds of bedding Calceolarias should now be inserted, and will be found to succeed better than those put in at an earlier period. They may be struck in well-drained 8-inch pots, in a compost composed of finely-sifted leaf soil and sand. The pots should then be placed in a pit or frame, which should for a time be kept close, and if a slight bottom-heat can be conveniently given, it will be found advantageous. Cuttings of some of the hardy plants commonly used as edgings to flower beds, such as the Cineraria maritima, Santolina incana, Leucophyta Brownii, Golden Thyme, &c., may now be inserted; or, a few plants of each of these species may be potted up, and will furnish abundance of cuttings, which may be struck in spring. Wherever it is intended to carry out a system of spring bedding, the arrangement of the garden should now be decided upon without delay; and everything, as far as possible, should be in readiness for re-planting the beds and borders as soon as their present occupants have been removed. It is necessary that Hyacinths, Tulips, and other bulbs intended for this purpose should be planted as soon as possible, as well as the various species of spring-flowering herbaceous plants used for spring bedding, such as the different species of the Aubrietia, which are nearly all suitable for this purpose; the Arabis alpina, lucida, præcox, and purpurea; the Bellis perennis, or double Daisies of various kinds, all of which are most effective as profuse-flowering spring plants; Gentianas, Hepaticas, Myosotis dissitiflora and azorica, double and single Primroses, Polyanthuses, Vincas, Violas, bedding Pansies, double and single Wallflowers, and others. Many hardy succulent plants, such as the Sedums, Sempervivums, and other species, may also be used with good effect in spring bedding; and, by their aid, the carpet style of planting may be adopted in spring as well as in summer. In arranging the spring-flowering plants for the various beds in the flower garden it will seldom be advisable to plant any of them with bulbs alone, such as the Hyacinth and Tulip, as this would necessarily leave the surface of the beds destitute of verdure for a considerable portion of the season. But a more satisfactory arrangement may be made, and a better effect produced, by planting the bulbs somewhat thinly in most of the principal beds at least; and, as soon as this has been done, by carpeting their surface with such plants as Aubrietias, Violas, Silenes, Sedums, and other suitable plants, a finished look is given to the garden which will continue to increase in beauty as the various bulbs are developed. Proceed, as rapidly as circumstances will permit, to plant shrubs and trees of all sorts wherever such work has to be done, and, if it is desirable to transplant or move large specimens, let this also be effected without delay. Lawns and Grass belts will still require to be occasionally mowed either with the scythe or the mowing machine, and, together with gravel walks, will require frequent attention as regards sweeping and rolling—in fact, the broom or the sweeping machine will, for some time to come, be in constant request.—P. Grieve, *Culford, Bury St. Edmunds.*

Roses.

For pot Roses to keep up a supply of cut flowers for bouquets and button-holes a number of the best and most backward flowering plants should be selected and placed under glass, either in pits or in a greenhouse, so as to prolong their period of bloom; many of them will thus flower up to Christmas. All pot Roses will require some slight protection from the cold nights and heavy rains that may be expected at this season of the year. An open glass shed is best for Hybrid Perpetual varieties, so that they may get plenty of air to ripen their wood and keep them more backward in starting into growth. The Tea Roses will require cold pits, which can be covered with mats or litter during sharp frosts. The Roses that are kept unprotected should be plunged in leaves so as to keep frost from their roots. If the soil and roots of pot Roses are allowed to freeze an immense amount of injury is occasioned; oftentimes the shoots break in a weak condition, and, in some cases, there are no flowers. Examine all plants before placing them in pits, and free them from worms and insects. If worms are present water with lime water, and if they are touched with mildew sulphur all parts that are affected or syringe the whole with soot water. Those plants that are selected for forcing so as to flower in January and February should be watered sparingly, so as to give them a slight check, and all shoots should be pegged or tied down so as to get the base buds to show up more prominently.

Place the plants in a cold pit, occasionally syringing them with water with which a little soot has been mixed. This will keep down mildew, and the plants will be ready for placing in bottom-heat in November to start them gently into growth. Roses do not require hard forcing; they should be pushed on gently with bottom-heat and plenty of top air during the sunless months. A span-roof house or pit is best for Roses where plenty of light can be obtained; and, in order that the plants may not be drawn too much, the house should be so constructed that air can be given all round it if required. Most of the Tea Roses are the best for forcing for very early work, and those I recommend for button-holes are, of Teas—Safrano, Devoniensis, Goubault, Isabella Sprunt, Madame Falcot; Noisettes—Lamarque, Céline Forestier, and Maréchal Niel; Hybrid Perpetuals—Duke of Edinburgh, Jules Margottin, S. Reynolds Hole, Boule de Neige, and Fisher Holmes. The whole of the above have very fine buds. Some of the Tea Roses are only fit for cutting in the bud, such as Safrano, Isabella Sprunt, and Madame Falcot; for, when they are fully open, they are too loose for any kind of furnishing. In cutting Rose flowers, when the buds are far enough advanced, they should be placed in water, a little of Condy's fluid being used, the latter retarding, in a measure, the opening of the blooms. I have always found it an excellent thing to use a little in the water to keep Roses from opening too fast.—H. G.

Orchids.

This month all Orchids should be carefully looked over for scale and thrips, which may be removed by sponging with weak tobacco-water and soft soap mixed together, and applied at a temperature of 85°. It is also a good time to remove plants that have completed growth, and do not require such a warm temperature while resting. Those who have not sufficient accommodation to admit of transferring their plants into other houses should place them at the coolest end of the building in which they have been growing, where the temperature will be from 4° to 5° lower. By this time all shading should be removed from the Mexican-house and north houses, and a great many of the Vandas, Aërides, and Saccolabiums will be growing freely. These should have a day temperature of from 75° to 80°, and a night temperature of from 60° to 65°. Cattleya Mossiæ will be growing freely, and should have the warmest part of the Cattleya-house. The Cattleya Trianæ section will now have completed their growth; these should have more light and air, when they can be admitted with safety. They will be making roots freely from the young growth, and it will be necessary to look the plants over often for woodlice, as they are very fond of the roots. Phalænopsis requiring potting should now be attended to; Anæctochilus, too, should be divided and potted in Sphagnum Moss, silver sand, and very small crocks, in equal parts. Plants of Disa grandiflora that have made growth an inch long should be re-potted, or a portion of the old soil removed, and should be supplied with a mixture of rough peat, sand, small crocks, and spent manure from a Mushroom bed, in equal portions, and placed at the cool end of the Odontoglossum-house, where they must be kept moist at the roots. Cœlogyne cristata will advance in growth, and must be abundantly supplied with water, and with weak liquid manure once a week. Odontoglossum Bluntii, Roezlii, vexillarium, Hallii, and Oncidium macranthum will be growing freely, and should be freely supplied with water, and with air when it can be given with safety. Great care will be needed in watering the floors and benches as the season advances. The Orchids in flower at the present time are Oncidium tigrinum, O. ornithorhynchum, O. obryzatum, Odontoglossum Bluntii, O. Roezlii, O. Rossii, O. Pescatoria, O. grande, Cypripedium insigne, C. venustum, and Phalænopsis.—E. C.

Indoor Fruit Department.

Vines.—Grapes which are hanging ripe must be examined frequently after this time, and all berries which show the slightest sign of decay taken away. When not often attended to, one diseased berry very quickly affects those which may happen to rest against it. Admit abundance of air from both back and front ventilators during fine weather. Do not employ fire-heat unless where absolutely required, and then use it throughout the day when the moisture which it causes to rise can escape readily. Autumn-propagated bedding plants, and other subjects requiring protection during the winter, are often placed in Vineries, where they prove a very fertile source of damp and decay to Grapes. Every other spare corner should be filled before Grapes are thus endangered, and no more water must be used than is actually needed. Strict precaution against damp may save many pounds of fruit hereafter. By and bye, when all the foliage is off the Vines, their keeping is an easy matter. The greater part of the canes of fruiting pot Vines are now ripe, and are casting their golden-coloured leaves. In this state they should be removed from the influence of all artificial heat; but they cannot be safely set aside now, as the soil about the roots soon becomes saturated with wet. A Vinery or Peach-house, from which the fruit has lately been all gathered, and which is being kept cool, is a good place for them for the next few weeks. Here they will need little or no water. Be careful not to give too much water to small planting canes, and the early rods which have shed their leaves will need no water at all.

Pines.—The earliest batch of Queens must now be kept very quiet; in fact, all growth in them should be stopped; water, at the most, will not be needed oftener than once in three or four weeks, and the bottom-heat temperature may range between 60° and 65°. The fresh vigour of the plants is well sustained with this, and the air-heat is not of so much importance; no calamity will occur if it range between 55° and 65°, but at no time should the latter be exceeded with fire-heat, or harm may result. Other Queens, to form a succession to these, will soon require to be subjected to the same treatment; meanwhile, do not allow the foliage to shrivel through letting them go to rest too quickly.—J. Muir.

CHURCH DECORATION.

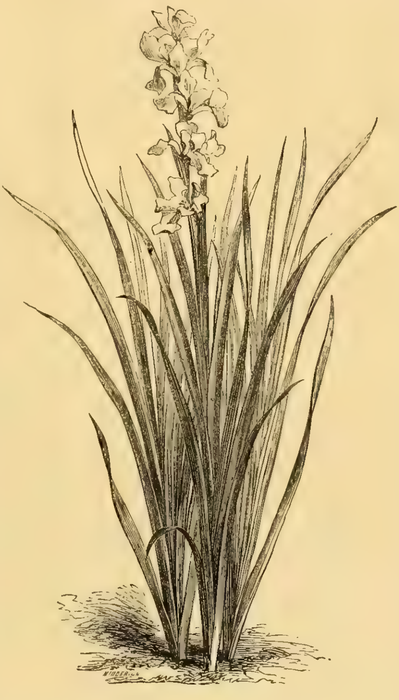
Church decoration, in connection with the principal festivals, is every year becoming more general, and the part taken by gardeners in the work more extended. I have lately had an opportunity of witnessing a rather tasteful example of church decoration at an annual harvest festival. With the exception of a few groups of Ferns and tropical plants, the materials used are common almost everywhere, and consisted mainly of the various kinds of wild fruits and berries, Grapes, cereals, Hops, evergreens, and flowers. Some of the wreathing and tracery was exquisitely done by ladies; one of the prettiest examples was formed by working a narrow back-ground with flat pieces of Arbor-vitæ, on which were arranged the woolly capsules or seed-vessels of the common Clematis, intermixed and blending tastefully with Acorns, Hips, Haws, Sloes, Portugal Laurel, and Ivy berries, with just sufficient bright-coloured flowers to lighten it up. I have rarely seen common plants so effectively used. There was also considerable ingenuity displayed in selecting the materials for forming the letters of the various biblical extracts adorning the walls of the church. The letters of one of the most effective were formed with the scarlet berries of the Cratægus Pyracantha, on a white ground wreathed round with Ivy leaves, relieved at intervals with clusters of the almost black Cherry-like fruit of the common Laurel. In another instance the letters were cut out of cotton wool on a red ground; others, again, were formed with Rice and various kinds of grain. In decorating large buildings the interior arrangements of which are sometimes of a gloomy character, a large allowance should be made for the effect of light and shade, and the distance at which it is necessary, in many instances, to place the decorations above the eye. In wreathing arches, heavier materials may be used than would be desirable at a lower level. A large Dahlia flower shows but a small amount of colour when placed at a distance above the line of sight—in fact, the most effective flowers I noticed for lofty decoration were Sunflowers and the feathery silver plumes of the Pampas Grass. Perhaps the font, for appropriate and chaste arrangement, was the most effective of anything I saw. The base was covered with Ivy closely arranged, in which were inserted Snowberries, white Roses, and other white flowers, contrasting well with the dark foliage. Masses of Lycopodium denticulatum filled the niches between the supporting pillars, whilst a dense growth of Sedum carneum variegatum hung down gracefully from the top, and over all was a circular trellis covered with Clematis Flammula and Stephanotis. In the angles, on bases of Ivy, were arranged groups of choice Ferns. E. Hobday.

Physianthus albens.—"W. T." (see p. 268) will not require a warm greenhouse in which to winter this. I have a plant of it growing in a large pot, which has stood in a house without fire-heat for many years—a house used for pot specimens of different varieties of British Ferns, and, in severe weather, every pot gets frozen through. Unfortunately, the flowers of this plant are scentless; but the large seed vessels are ornamental, and, when ripe, burst and expose a handful of cottony fibre, to which the seeds are attached. I have not succeeded in propagating the plant from cuttings; but the seeds germinate freely.—J. M., *Hawkchurch, near Axminster.*

THE FLOWER GARDEN.

THE CALCEOLARIA DISEASE.

The Calceolaria is held in such universal esteem as a bedding plant, that anything that may throw light on the disease, to which it so frequently falls a victim, is sure to be of interest to a numerous class of your readers. There can be few gardens in which the Calceolaria is not cultivated with more or less success; and, as there is nothing to equal it in colour and general effect, it is somewhat disappointing to have to do without it in bedding arrangements. From my own observation, I am led to believe that the so-called disease is developed at the root, and is not, as is generally supposed, an affection of the leaf. Nine-tenths of the diseases of plants arise in this way, unsuitable soil, or insufficiency of moisture, throwing the roots into an unhealthy state, which soon becomes apparent in the weakness and derangement of the entire plant. Wherever I have seen curl, or other symptoms of disease, in the leaves and stems of Calceolarias, I have always been able to trace it home to the soil in which they had been growing. Few cultivators pot their Calceolarias, and, to ensure their lifting with good balls at bedding time, it is the usual practice to prick them out in soils containing a good deal of undecomposed vegetable matter. This, as is well known, readily generates Fungus, and it is to this insidious and almost imperceptible enemy that many of the apparent diseases of plants are to be attributed. The Calceolaria has very peculiar hirsute-looking roots, to which the web-like threads of the mycelium readily attach themselves, and at once paralyse the growth of the plants. I had convincing proofs of this last spring, as most of our plants were unfortunately pricked out in a mixture consisting principally of Mushroom dung and leaf-soil. Although healthy and vigorous when taken from the cutting frames, they had not been long in the mixture mentioned before they began to show signs that something had gone wrong with them. The leaves, that were previously perfectly flat, began to twist and curl in a very peculiar manner, and large whitish-looking blotches became apparent, and soon extended over nearly the whole of their surface. This might readily have been mistaken for mildew, but, on examining the soil, I found the whole of it permeated by Fungus that had been introduced in the leafy soil, and this had fastened itself thickly on most of the roots, and was evidently the cause of the mischief. Others growing by the side of these, but fortunately planted in loamy soil, were quite free from the attacks of the disease, and to these we have had to look principally to fill our beds. Now that the season has arrived for putting in cuttings of the Calceolaria, I would advise all who wish their plants to be free from disease to avoid the use of undecomposed vegetable matter. The best place in which to strike and winter Calceolarias is a moderately deep brick pit, without any artificial heat whatever. If most of it is below the natural surface so much the better, as tending to keep the interior in a more uniform state, both as regards temperature and moisture, both of which are of some importance. In making up the frame or pit previous to inserting the cuttings, the bottom should be filled in with rough material, over which some good pulverised loam should be placed, with a dash of sand on the top, in which the cuttings should be inserted. These should be planted in rows about 3 inches apart, and the cuttings may then stand 2 inches or so apart in the rows, except space is plentiful, when they may, with advantage, have more. After the cuttings are in, the lights should be kept closed till they have rooted, unless any are seen to be damping, when air should be admitted. Should the weather be bright and dry for the first week or two after inserting the cuttings, it may be necessary to give them a slight sprinkling to keep them from flagging, which they should not be allowed to do. Almost every Calceolaria grower has his own special favourite, but, where height and compactness are not so much a consideration as freedom and continuity of bloom, the beautiful soft lemon-coloured amplexicaulis should not be lost sight of. For compactness of growth and freedom of bloom, the old rugosa and Kayii are still two of the best orange-coloured varieties, whilst aurantiaca floribunda is a good dwarf sturdy kind that has many admirers. J. Sheppard.



The Giant Iris (I. gigantea).

THE GIANT IRIS.

This variety, which has been named I. gigantea, appears to be quite new. In addition to its unusual proportions, its flowers, though inodorous, are large in size, and very beautiful. Planted in damp, somewhat stiff, soil, on the margin of water, it attains comparatively a colossal size, and it is possible that it might be treated wholly as an aquatic, and used in the embellishment of ornamental water—in fact, it is almost certain that it would thrive under these conditions. This giant species, in all probability, came originally from central Asia; but it was received by M. Oudin, a horticulturist at Lisieux, from Vienna, some years ago, under the name of the Pomeranian Iris. Judging from its hardiness, it must come from a cold country, as the severest winters do not injure it in the least. It succeeds in all kinds of soil, but thrives best, as has been stated, in damp, somewhat stiff loam. As regards propagation it is effected by division of the rhizomes, the growing points being best adapted for the purpose. In order to induce the formation of buds on old rhizomes, which are nearly always without them, instead of dividing them entirely, cut them about three parts through with a spade or other implement, when adventitious buds will be produced on the cut portions, which will then be quite as useful for purposes of propagation as the growing points. I. gigantea often attains a height of nearly 5 feet, the flower-stems being strong and upright. The external divisions of the flowers are yellowish-brown in colour, striped at the base, the internal divisions being white. The leaves are straight and thick, and are produced in fan-like masses.—"Revue Horticole."

TROPÆOLUMS OR INDIAN CRESSES.

Early in the sixteenth century the Spaniards discovered the Greater Indian Cress in Peru, and gave to Tropæolum peregrinum (the Canary Creeper), which they found growing in the gardens of Lima, the name of "Paxaritos amarillos" (Yellow birds). Tropæolum majus passed from Spain to the garden of Henry IV., at Paris, and thence to that of our old herbalist

Gerarde, who, observing its acrid, pungent, anti-scorbutic properties, named it Indian Cress, from its resemblance to the Cruciferæ. It is noteworthy that Tropæolums are the only plants not belonging to the order Cruciferæ on which the larvæ of the Cabbage butterfly will feed. Linnæus could not allow so misleading a name as Nasturtium or Cress to be perpetuated, and the peaked feathery flowers and orbicular peltate leaves suggested to him the helm and targe piled up as a trophy of some ancient battle field; hence, the name Tropæolum. The Canary Creeper was not introduced into England until near the end of the last century, and only became popular comparatively recently. In 1755 Professor Martyn, of Cambridge, writes:—"The greater species (T. majus) is most common in gardens, and is known by the leaves being divided at the edge into five lobes, and being peltate or having the petiole fastened to the middle of the leaf's surface; the petals are blunt at the end in this, whereas, in the smaller sort, they are sharp pointed. The corollas of both are large, and of a fine orange colour." Floriculture had not then varied them from pale buff to the darkest chestnut, nor obliterated the lobing of the leaf in the mature condition. The general structure of the variegated variety, Minnie Warren, which is largely used as a border plant at Heckfield, is similar to that of the large dark-flowered kinds, but the anterior petals are more reduced. A new variety, T. Milesianum, raised by Mr. Miles, at Cressingham, is, in many respects, worthy of notice. It is perfectly hardy, a remarkably strong grower and free bloomer, continuing in flower right into the winter, long after other sorts have gone out of flower. It grows equally well on the ground or on trellis-work. The leaves are not large, but have a blue-grey "bloom," reminding one of the Sea Hollies. They are distinctly five-lobed, three of the lobes, however, being more prominent than the others, as in the rudimentary stage of the common forms. The flower-stalk, calyx, and spur are of a delicate rosy-red, while the corolla, which is nearly 1½ inches across, is a rich scarlet or orange-red; but its chief beauty lies in its fine form, all the petals, as if to bear witness to Goëthe's law of serial homology, having three distinct lobes. One cannot consider the mechanism of the flower of this species without feeling convinced that it is specially adapted to attract insects, so as to secure its cross-fertilisation, which, if, as I believe, it is protandrous, must be absolutely necessary for seed production. The mode of the formation of the pollen in Tropæolum minus is well worthy of microscopical study, and the manner in which this species and the Canary Creeper (T. peregrinum or aduncum) climb by twining their leaf-stalks, as does also the Clematis, is also noteworthy; but the pretty yellow Canary Flower has other points of interest. Its leaf is five-lobed, the centre lobe being again divided into three, and the two lower side-lobes into two lobules. The spur is short, and its nectar, which exudes from its whole length, is preserved by its being bent back upon itself, while the blade of the sepal forms a rigid back-rest for the fringed yellow petals, the claws of which are marked with red dots and lines to guide the insect to the honey-store. The three anterior petals are reduced to mere hairy yellow filaments, while in T. pentaphyllum they are altogether absent. But this Canary Creeper can obtain all its nourishment from the air, for, when full-grown, it will often sever itself from all connection with the earth, and become a true epiphyte, like many of the Orchids. Besides the four Tropæolums already mentioned, a hardy species, T. polyphyllum, is now in cultivation, which is said to come from the Caucasus. It has long tresses of yellow flowers, and blossoms in June. This species, T. tuberosum, and T. edule have tubercular roots, the two latter being eaten in South America. The hardy Tropæolums will grow in nearly any soil or situation, but, like the more tender sorts, do better in a sandy loam with plenty of sun. The best sorts for pot culture are, T. Jarratti, T. tricolorum, and T. azureum. They should be potted in autumn, with ample drainage, and some leaf mould mixed with sandy loam. The scarlet, yellow, and black flowers of T. Jarratti make a house look bright and cheerful, and the blue exception, T. azureum, in an order of red and yellow flowers, is a curiosity alike to the cultivator and the botanist. G. S. Boulger.

Cressingham.

A FEW MORE NOTES ON YUCCAS.

Dr. Engelmann has published a second series of notes on this genus in a recent number of "The Transactions of the Academy of Science of St. Louis," from which I extract all that there is of horticultural interest. Y. aloifolia forms almost impenetrable thickets on the coast of Florida, in which bears have their passages, and no doubt their lairs; they are very fond of the fruit. Y. Treculiana is synonymous with Hooker's Y. canaliculata; but I can scarcely accept this view. Y. aspera, Regel, "Gartenflora," is supposed, from a cultivated specimen seen, to be the same. Y. constricta, of Buckley, seems to be the same as Y. angustifolia var. elata, and Y. albo-spica, of gardens, the var. mollis of the same species. Respecting Y. filamentosa, numerous specimens from South Carolina, Georgia, and Alabama, prove that the varieties are difficult to keep apart. Dr. Engelmann thinks it best to distinguish them simply as var. angusta, lata, &c., according to the breadth of the leaves. Y. filamentosa seems confined to the low country of the south-eastern States, and not to penetrate into the interior more than perhaps 100 miles; while Y. gloriosa and aloifolia appear to be strictly sea-side plants. The following are the species distinguished by Engelmann, with their geographical distribution:

1. Y. aloifolia, Lin., south-east and south.
2. Y. Yucatana, Eng., south.
3. Y. guatemalensis, Baker, south.
4. Y. Treculiana, Carr., south-west.
5. Y. baccata, Torr., south-west.
6. Y. Schottii, Eng., south-west.
7. Y. brevifolia, Eng., south-west.
8. Y. gloriosa, Lin., south-east.
9. Y. rupicola, Scheele, south-west.
10. Y. angustifolia, Pursh, west and south-west.
11. Y. filamentosa, Lin., south-east.
12. Y. Whipplei, Torr., south-west.

W. B. H.

STEVIAS.

There are no plants more universal in their autumnal-blooming character than the members of the genus Stevia, and yet one may make the round of fifty gardens, and not find a single representative out of its forty odd species in cultivation. It would not mend matters much (says Mr. Niven, in the "Florist") were I to enter into a speculative enquiry why this should be the case; rather let me endeavour to point out wherein their value chiefly consists, enumerate a few of the obtainable species, and show how they may readily be cultivated. Possibly in considering the latter portion of the subject we may find out a reason for their scarcity. The genus Stevia is an old one of Cavanilles, nearly all of whose representatives are natives of Mexico, where they enjoy a wide distribution, and are generally met with growing at considerable altitudes, though, of course, far below the line of strictly Alpine vegetation. It belongs to the large natural order Compositæ, amongst whose 12,000 species it is referred to the section Eupatorieæ, and in popular parlance may be said to be a first cousin to the Ageratums. They divide themselves into two sections—the one consists of true herbaceous plants that die down annually to a remarkably short underground root-stock; the other of shrubby evergreen plants, much less hardy, and liable to perish with a few degrees of frost. Of the latter section I believe we have only two species in cultivation. In the former, or herbaceous group, there is so much similarity in growth and general character, that it will be better to preface its consideration in detail by a few general remarks that will be applicable to all, supplementing the same with a few distinctive characteristics by which the species may be identified. I have already said they have a remarkably short underground root-stock; from the lower portion of this proceeds a dense, tufty mass of hard, almost woody, deep-striking roots, and from the upper part is developed a number of stems, rising to a height varying from 1½ to 2 feet, well furnished with small linear or ovate leaves. The flowers are small, consisting of about a dozen florets, surrounded with a green involucre; an important specific variation arises from the dense or lax arrangment of these flowers, but, under whichever arrangement they may occur, they are produced in such abundance that they give the plants a striking and graceful appearance, all the more effective seeing that their blooming period extends from August to the end of October, and even into the dull month of November, always provided, of course, that a severe autumnal frost does not mar their beauty.

S. Eupatoria has densely-massed heads of pink flowers; the stems thus terminated are also slightly pink and furnished with short hairs; the leaves short and obovate; the whole plant of somewhat rigid growth; it flowers in August. S. glandulifera produces scattered leafy corymbs of bright deep rosy flowers; the stems are not nearly so foliaceous as in the former species, and, when growing vigorously, the plant attains a height of 2 feet or more; the leaves are almost ovate. S. ivæfolia has light green, narrow, almost spathulate leaves; each stem is terminated with a dense compact head of white flowers; these are produced in the early part of August, and are succeeded afterwards by secondary growths from the original stem, somewhat smaller, but similar in character. These are exceedingly useful as cut flowers in the month of October. S. laxiflora, as the specific name very properly indicates, has flowers which are widely distributed over branching foliaceous stems; they are of a purplish colour, but, as raised from seed, are liable to assume a light lavender tint; their scattered arrangement renders them less valuable for bouquets, but in ordinary growth in the garden they are even more effective. This plant has a vigorous growth, attaining a height of nearly 3 feet, and blooms in September and October. S. monardæfolia is perhaps the strongest grower of all the Stevias; the leaves are broadly cuneate, the stem branching at one half their height into widely-spread leafy panicles; the flowers rosy-tinted and produced freely. It forms a handsome border plant, flowering in September and October. S. ovata has the stems numerous, the leaves broadly ovate, the flowers very lax in their arrangement—in tiny groups, nestling amidst deep green leaves, reminding one of some of the Galiums in appearance. It grows from 2 to 3 feet high, and flowers freely through September and October. S. serrata is of rigid growth, the stems clothed with narrow distinctly serrated leaves, branching towards the top, and terminated by dense tufts of flesh coloured flowers. The flowering branches are from 15 to 18 inches in height. S. trachelioides is the loveliest of the whole herbaceous section. It is of slender growth, the flowering stems very laxly disposed, and few in number; the flowers are a bright crimson, sufficiently dense in their arrangement to make them attractive; the stems are purplish, and the leaves scattered and ovate. It flowers in October, so late that it rarely ripens seed in this country. The above species are selected from amongst those in cultivation as possessing well-defined specific characters. There are several other species, but so closely do they approximate to some of those mentioned, that to quote them would be to the ordinary cultivator but a mere repetition of names.

In the shrubby section, so far as I am aware, we have but two species in cultivation at the present time, viz., S. salicifolia and S. Lundiana, the latter sometimes called S. Lindleyana; possibly both may be more correctly referred as mere varieties to the old species S. viscosa, as one important feature in this plant is that the long, narrow leaves are covered with a viscid excretion. Its habit is distinctly woody and elegantly branching, and it grows to a height varying from 1½ to 2 feet, under ordinary culture, but, no doubt, if planted out in a conservatory border it would assume the character of a good-sized shrub. Although not hardy, it has a value as a pot plant for winter-blooming that would be more fully appreciated were it more widely known. When struck from cuttings in spring, and flowered in 32-sized pots, under the influence of the check from the small size of the pots, it produces freely its dense corymbs of white flowers, tinged with lilac, in September and October, and will extend its floriferous period in a moderately dry atmosphere into November and December, but so densely are the flowers arranged, that, failing the important condition of dryness, they are liable to be invaded and destroyed by damp, which is the great enemy we have to contend with in our greenhouses in November and December. S. salicifolia has a somewhat similar aspect, is more vigorous in growth, blooms earlier, and is less dense in the arrangement of its pink-coloured flowers; moreover it is not so woody, and hence not so well adapted for winter purposes. I have not met with it recently in cultivation, but have no doubt it may yet be found in some out-of-the-way corner of the horticultural world. Neither of these species ripens seeds in this country, hence they must be increased by cuttings; and a few reserve plants in small pots that may be placed on a greenhouse shelf are necessary, in order to retain the plant in cultivation by the spring-cutting process to which I have already alluded.

As regards culture, the herbaceous section of the Stevias will thrive in almost any soil. Our heavy clay here appears to suit them quite as well as the light gravelly soil at Kew—in fact, rather better—always provided one precaution be taken, and on this very precaution appears to hinge the question whether the Stevias may be considered tender or hardy. Under any circumstances, whether in light or heavy soil, if the frost gets to the crown of the root, the plant is sure to perish, but if, on planting out, the crown is buried, say 4 inches below the surface—even at the expense of burying a portion of the then existing stems—not placed level with it, as is too often done, that plant will stand for years, and what is more, improve every year, both in the number of its flowering branches and the vigour of its growth. When thus planted, it is a thoroughly good perennial, and coming naturally into blossom so late in the season, and retaining the full vigour of the plant's development to the last, it has a high value as a border plant. I believe that a supposed tenderness—which, under the conditions I have indicated, becomes completely neutralised—has militated against the more general cultivation of this group of plants. The shrubby section may be readily increased by cuttings, which root freely in a gentle hot-bed in spring; but the herbaceous section, according to my experience, does not root so freely from cuttings. As a rule, however, they seed pretty freely, and in this natural mode of reproduction they appear to retain to a very great extent their true specific character.

Winter Protection of Yuccas.—As the winter is rapidly approaching, I should be glad if anyone would give me a receipt for preserving the beauty of my Yuccas until the spring. Though but few die, each winter leaves them with many dead leaves, and a general shabby appearance. Their chief enemies seem to be wet, dead leaves—which rot in the heart—with snails and earwigs, which feed on them. Though I have several varieties, Y. recurva is the one in which I am most interested. It forms a showy centre to many of my flower beds. Cold does not seem to injure it in the slightest degree.—J. H. W. T., *Belmont, Carlow.*

Acer Negundo variegatum Intermixed with Clematises.—When at Campsey Ash a short time ago I was struck with the effect of Clematis Jackmani rambling amongst plants of this Acer. The delicate variegation of the latter associates charmingly with the rich colour of the Clematis, and when seen from a distance a more beautiful combination cannot be imagined. Large beds planted thinly with the Acer, and a few plants of this Clematis, or the variety known as rubra violacea would have a fine effect, and as the Clematis does not last in bloom the whole season, the Acer would continue to furnish the bed.—J. Sheppard, *Woolverstone.*

Caladium giganteum out of doors.—A few one-year old plants of this were planted out, during the first week in June, in a scroll bed here, intermixed with the Tobacco plant, Coleus Verschaffelti, Stachys lanata, Iresine Herbstii, Variegated Colt's-foot, Oxalis corniculata, Golden Thyme, &c. The bed occupied a sheltered situation, with a southern aspect, and the plants grew rapidly, making an effective bed of sub-tropical appearance. The Caladiums in question have succeeded so well that I intend planting them out extensively in future. The stems at the surface measure from 10 to 12 inches in circumference, the leaves being proportionately large and healthy, and seem able to withstand uninjured the low night temperature and slight white frosts that we have had here recently. If this stately Giant Caladium found a place amongst sub-tropical subjects planted out in public parks and gardens, it could not, I think, fail to be appreciated.—A. Boyd, *Slaney Park, Wicklow.*

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Sweet Roses.—Mr. Henry Taylor has omitted from his interesting list one of the most fragrant of all Roses, viz., the Rev. J. B. Camm. If this Rose were not commendable, as it is, for form and colour also, it would still be a favourite for its delicious perfume; and I was glad to see in the nurseries at Slough that my friend, the raiser of the Rose, has a large number for distribution.—S. Reynolds Hole.

Senecio pulcher.—This is one of the most showy autumnal blooming plants with which I am acquainted, bearing large rosy-lilac flowers of a very conspicuous character. I advise all growers of herbaceous plants to procure it, as it will be sure to please them.—J. G. N.

New British Plant.—Mr. James Abbott showed before the Leeds Naturalists' Society, at its last meeting, a very interesting plant, new to this country—Potentilla norvegica. It grows abundantly on the banks of the canal between Armley and Kirkstall.

Ribbon Border Plants.—A good ribbon of three colours may consist of, first, Golden Feather Pyrethrum, then Viola Perfection, and lastly Dactylis glomerata variegata. A ribbon made of these plants looks better than one consisting of Cerastium tomentosum, Musk, and Viola cornuta.—M. J.

Rhodochiton volubile Hardy.—This has been for the last three weeks in beautiful bloom with me in the open border. Its bright mauve calyx and deep purple tube render it one of the most strikingly beautiful flowers grown, and it is a great pity that it is so seldom seen.—H. Harpur Crewe, *Drayton-Beauchamp Rectory, Tring*, Sept. 28.

Blue Hydrangeas.—The enclosed comes from a small rooted bit of a beautiful turquois-blue Hydrangea, planted in a rather shaded Rhododendron bed, about five years ago. The plant itself is strong and healthy, but this is the first year it has shown any disposition to bloom. Will any reader of The Garden tell me how to improve it and cause it to produce blue flowers.—M. Byam, *Warblington Lodge, near Havant, Hants.*

Calceolaria bicolor.—This has been in full bloom with me for the last few weeks. It is a rather tall and strong-growing species, with numerous bunches of sweet-scented bright canary-yellow flowers, the lower half of which is white. It seems very healthy, and has escaped the disease which has, more or less, injured C. Kellyana, C. Plantaginea, and C. hyssopifolia, which are growing in the same bed.—H. Harpur Crewe, *Drayton-Beauchamp Rectory, Tring.*

Vittadinia triloba Suitable for the Wild Garden.—Anyone in search of a suitable plant for growing on rock-work or in the wild garden, should obtain this, which is one of the freest-blooming and most suitable plants in existence for such situations. It is rarely, if ever, out of bloom; continuing, during the whole of the summer and autumn months, to send up its pretty Daisy-like flowers in the greatest profusion. These seed freely, and young plants in abundance spring up, so that there is little fear of losing it when once it becomes established.—S.

THE KITCHEN GARDEN.

ONION CULTURE.

In situations where the Onion succeeds, it is a most remunerative crop. About three weeks ago, we harvested our spring-sown Onions, the produce of a bed 42 feet long and 15 feet wide, or 70 square yards. The Onions were sown in drills 1 foot apart, making forty-two rows to the bed. Before storing them away, I weighed the crop, which was about 7 cwt., or at the rate of 24 tons 4 cwt. to the acre. The extra weight we attribute to the plan adopted at the time of thinning the crops. Instead of having it thinned in the usual way, at 4 or 6 inches apart in the rows, I only left them from 1 to 2 inches asunder. If I were growing Onions for purposes of exhibition, or merely for show, I would have them from 4 to 6 inches apart in the rows; but when they are grown for market, or for ordinary culinary purposes, it is a great mistake to thin them out much; on the contrary, they should be left so that they will touch each other when they become ripe. Long-keeping Onions are in more request than large specimens. This is obtained in medium-sized samples that are well ripened rather than in overgrown, or what may be termed show Onions. When our crop was ripe, the bulbs not only touched each other in the rows, but they thrust each other out in all directions, and actually now and then lapped over one another, especially the Banburys, and presented the appearance of tiles on the roof of a house. Though they were clustered so thickly together many of them were 10 inches and upwards in circumference, a size quite large enough for ordinary purposes. The varieties which I grow are mostly confined to the Banbury Prize, Brown Globe, Bedfordshire Champion, Deptford, James's Long Keeping, and White and Red Italian Tripoli—the two latter I sow in autumn to stand the winter. The Banbury Prize is an improved form or a very good strain of the White Spanish; it is an excellent Onion, and the best in cultivation for exhibition purposes. The Bedfordshire Champion is a finely-shaped Onion, which grows to a large size, and is an excellent keeper. Brown Globe is a medium-sized variety, fine in flavour, and good for early use. The crop on the same space of ground is about one-third lighter than that of Bedfordshire Champion or Banbury. James's Long Keeping is a capital Onion, which grows to a good size, and is, perhaps, the best keeping kind in cultivation. The Reading is a large, somewhat flat, and pale-skinned variety, having a very mild flavour, but it is not a good keeper; it should, therefore, be used before Christmas. The Deptford, a well-known Onion, is one of the best varieties that can be grown; it keeps well, and is generally sown for yielding a supply during winter and spring. Its skin is of a brown colour, the flesh is firm, and the flavour strong. The White and Red Italian Tripoli I sow in August for early summer use, and, by good cultivation, they attain a very large size, and are the best sorts for autumn sowing.

The soil for Onions should be tolerably rich and well pulverised, and, if possible, that which has been trenched and either left very rough on the surface or laid up in ridges during the winter. Onions root deeply, and if the sub-soil will allow of the ground being trenched 20 inches or 2 feet deep, so much the better. It is more important to have the ground well worked, even with a moderate supply of manure, than to add a large quantity of manure and dig shallow. I have repeatedly noticed, when the weather has been dry and hot, that the roots have gone down 24 inches, where the ground has been in good condition the whole depth. It is always advisable to have the ground well worked and in good condition, so that the bulbs may gain solidity. Many people, cottagers in particular, grow their Onions on the same piece of ground year after year; this is not a plan to be recommended, for Onions, like other vegetables, prefer a change of soil and situation. No advantage is gained by having this crop on the same plot for a number of years, and, therefore, I change the ground every year.

The time of sowing must be regulated by the state of the weather and the condition of the soil. There is nothing gained by early sowing in wet localities and on heavy soils. The ground, of course, should be prepared as early in the winter as it becomes unoccupied, and should be left with the surface rough and exposed to the pulverising influence of the weather. If I can clear my ground of the previous crop by Christmas I have it trenched at once two spits deep, and work into the bottom of the trench a good quantity of vegetable refuse; the manure is applied about six weeks before the time of sowing, when it is dug over a second time, which leaves the ground in good condition for the reception of the seed. On the occurrence of the first fine weather in March it breaks freely, and is what may be called "powdery." It is levelled and trampled all over and made quite firm. Here, in the midland counties, we find, as a rule, the middle of March sufficiently early to sow Onions; but, on very dry sandy soils, I would take the first opportunity after the 1st of March. A week, or even a fortnight, is of no consequence compared with the soil being in good condition for the reception of the seed; and it is better to wait than to sow for the sake of getting in the seed at a certain time, and when the ground is not in a fit state to receive it. I sow in drills 12 inches apart, a plan by which the ground can be kept free of weeds with little trouble. If I were to sow on beds 4 feet wide, the drills need not be more than 7 inches apart. The drills being drawn, the seed is scattered regularly along them, and raked in; then I give the ground another good trampling, and finish off with the rake. I generally sow a handful of Radish seed along with the Onions, as a sort of catch crop, which is off before the Onions require thinning. As soon as the seedlings are 2 or 3 inches high in the rows, a small Dutch hoe should be carefully run between them, to check the growth of weeds and break the crust of the soil. The more frequently this operation is performed the better for the crop; it keeps the ground free from weeds, and in dry weather prevents it also from cracking, as well as impedes the evaporation of moisture. The thinning should be done early, and on how this is done depends the bulk of the crop. Had we thinned our crop as usual we should not have had more than half the weight which we obtained, though the bulbs, no doubt, would have been larger. Towards the end of August or early in September the Onions will be ripe, and should be harvested when dry. The green and thick-necked ones should be laid aside for immediate use, but the firm and sound bulbs, particularly those of the Deptford and James's Keeping, must be cleared of any loose skins, and spread out a few inches deep over the floor of a loft, or tied into bunches and strung in twos over poles, or hung on pegs in a spare room or shed, where they will be found ready for use at any time during the winter and spring. R.

The Tomato Disease.—My Tomatoes were very much affected by the disease this season; in many cases the plants were quite killed by it, and most of the fruit was rendered useless. I had the plants on a south wall well dusted over with soot, with the most satisfactory results, as the plants have grown out of the disease, and are making strong healthy shoots. The fruit that is showing has a perfectly healthy appearance. Had I used it earlier, I am of opinion that they would not have suffered at all from disease. If any of your correspondents have tried this, or have any other specific remedy for the disease, I should like to hear from them on the subject, for the Tomato disease is becoming almost as serious as the Potato disease—indeed it is, no doubt, the same thing, this plant being, like the Potato, a Solanum.—G. Brush, *High Grove, Pinner.*

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

Traps for Black Slugs.—If "Amateur" (see p. 289) will lay on the ground pieces of wood, the size of a sheet of The Garden, or less, slugs of all kinds will congregate under them, and may easily be destroyed, day by day, till none are left. Earth worms may also be caught in the same way. If there are any in the soil, they will come up and lie on the top of the ground under the pieces of wood.—G. F.

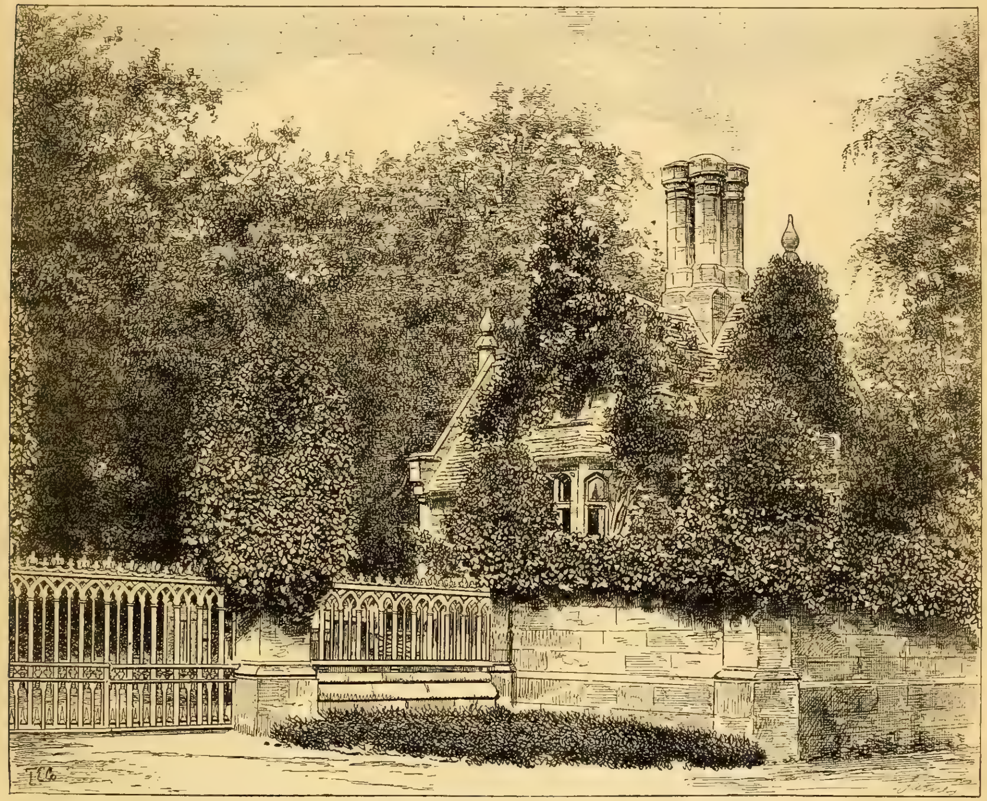
—— "An Amateur" who is somewhat afraid of trying salt, or salt and water, for the destruction of these pests, is right in being cautious in the use of a substance so dangerous to vegetation. I find no difficulty here in destroying slugs by using fresh slaked quick-lime, with which I thinly cover the ground or borders on dewy mornings, when these pests are at work. The soil of the kitchen garden here is very stiff and tenacious, like that of your correspondent's. Handfuls of brewer's grains, placed here and there in gardens, are likewise excellent traps for slugs.—William Tillery.

Victoria Dwarf French Bean.—Early in the summer, Mr. R. Dean, of Ealing, sent me a sample packet of this Bean for trial, and it has proved really good in all respects. It is quite distinct from any other Bean with which I am acquainted, is very vigorous in growth, averaging 2 feet in height, and is very sturdy and strong. The pods, which are from 8 to 9 inches in length, are borne in great profusion, and are excellent in quality. I consider Canadian Wonder, Osborn's New Forcing, and Victoria Dwarf the best three kinds of dwarf Beans that can be grown.—W. W., *Heckfield.*

ENTRANCE LODGES.

Among the things which in rural England strike one as most admirable are the entrance lodges. Externally, at least, they are the cosiest and freshest-looking of "man's nests." Wreathed with Wistaria, mantled with Ivy, or snowy with the autumn-blooming Clematis, they are frequently pictures of what the homes of working men might be if we could turn the whole land into an earthly paradise, and forget all the great cities. The entrance figured this week is one of hundreds which please the eye of the visitor to many of the country seats in the home counties. In the best examples of these it is not customary to plant many showy flowers near the entrances, or follow any other course which causes much labour or frequent disturbance of the ground. There are, of course, exceptions, where they are made so gay that there is little need for a flower garden in the same place. Better, much, a quiet effect in such a position; and nothing so much tends to that as covering the walls with climbers, &c. Without these, indeed, we have not seen any really satisfactory entrance lodge. Roses, Ivy, Wistaria, and Cotoneaster, are the favourite plants, excepting the Virginian Creeper, which is very extensively planted, and, as we think, undeservedly. The Virginian Creeper is very fine hanging down rocks or banks, or scrambling over rustic houses or clumps of trees of no value as specimens, or over rock-work and the like in semi-wild places; but, planted against a house, with all its leaves dropping while the gardens are yet full of beauty, on the 1st of October, it is far too quick in raising the banner of winter before reluctant eyes. No; it is not the plant to cover the walls of cottages that we wish to look cheerful all the year round. White climbing Roses are especially charming on entrance lodges, especially when contrasted with Irish Ivy. The very roof of the specimen we figure is covered with Wistaria, which has a very good effect. Young specimens of trees that grow very large, such as the greater Thujas and Cypresses, are frequently planted too near the lodge to be long in a satisfactory state in such a situation. There are plenty of species the fullest natural development of which permits of their being planted permanently in such positions; but none of those mistakes are in any way so bad as that of leaving an entrance lodge bare and unadorned with plants.

V.



Entrance Lodge at Bound's Park.

Mowing Machines and Tree Damage (pp. 227, 276).—I was once much troubled by this, but I corrected it by a very easy method. Formerly the mowing machine did all it could, and then the scythe finished near the trees and in other places where the machine could not go. This gave a great temptation to go as near the trees as possible. I then ordered the scythe to go first, and this has quite cured the mischief. I have now seldom cause to complain.—H. N. Ellacombe, *Bitton Vicarage*.

THE FRUIT GARDEN.

THE EXTENSION SYSTEM OF GRAPE-GROWING.

Mr. Curror has clearly shown that he can produce large bunches of Grapes, and he has also told us (see p. 289) how he obtains them. The composition of his soil is quite in accordance with my notions of a good Grape soil, only I would make mine stronger in clay, which would tend to keep the Vine longer in perfect health; nevertheless, I have seen fine crops of Grapes produced in a lighter class of soils, but then the constituent ingredients were such as enter largely into the requirements of the Grape Vine, as, for instance, where the Vines are planted upon limestone rocks covered with good light sandy loam. Near here there are several gardens where such conditions exist, and, in all cases, the rule is fine Grapes, large in bunch and berry, and well coloured and flavoured. But, to come to my own Vines, which receive very little attention in the way of high culture, I may begin by stating that my houses are lean-to, and rather pervious to rain and wind. My borders are formed of the natural soil, viz., light loam, mixed with well-decayed stable manure, the space being 2 feet wide and 2 feet deep. This is filled in to the extent of one-third with brick-bats, lime-rubbish, and clinkers, on the top of which is placed the compost in which the Vines are planted, about 4 feet apart, and as they grow they are trained to the rafters in the form of single rods, and are allowed to run as far as they can, *i.e.*, to the top of the house, and almost back again. Every leaf is encouraged to develop itself as much as possible; for on leaves, all other things being equal, depend good Grapes. I have long abandoned the system of over-pinching and over-pruning at wrong seasons, and now practise the extension system of culture to its furthest limits. Why stop a Vine-shoot at one or two buds beyond the fruit? Does not the fruit require as many leaves as possible beyond it to draw up the sap? And does not an abundance of leaves induce fine colour and fine flavour? That being the case, is it not injudicious to remove leaves in the way we do? I allow my Vines freedom, and never stop the leading shoots; they are left to ramble as they please, down the back wall or out over the top when the sashes are left a little open to give air. I like to see a Vinery dark, owing to the large well-developed foliage which it contains. I give air as soon as possible every morning, say by eight o'clock, and shut up by two or three, according to the power of the sun, and if the temperature inside should get up to 120° no harm is done. I have long ago discarded thermometers in hot-houses, as Nature is a better guide. No bad-coloured, shanked, or mildewed Grapes need be feared by following the practice just recorded. How wretched it is to see a house of Grapes badly coloured, shanked, and mildewed, and all through following the very questionable system so much practised as regards thinning of both shoots and leaves. I have only to add:—Prune early in autumn, and prune closely into the inmost bud. If you have encouraged leaves, you will have well-developed buds; and no danger need be feared from too close pruning. Let your Vine when pruned look like a walking stick, free from knots or other excrescences. I never use fire-heat as I have to fill my houses with plants all the winter and spring. I give, during the growing season, four or five good waterings with liquid manure from a tank in the stable-yard. I never syringe, but moisten the paths, &c., during the growing season, and when the fruit begins to colour, I keep my houses as dry, warm, and airy as I possibly can. J. Scott.

Merriott, Crewkerne, Somerset.

MR. DANCER'S FRUIT TREES.

The following, from the "Field," fully confirms all that was stated, the other day, in The Garden (see p. 255), respecting the merits of Mr. Dancer's fruit culture:

Climate and Soil.

These Mr. Dancer has proved to be capable of growing as good fruit as those of France. His Pears are quite as fine as the best Continental growths. No one could desire to see finer specimens of the best autumnal varieties than those recently gathered in quantity by him, and these are mostly of the newest and finest kinds. The tradesmen in our markets, from custom or interest, encourage fruit of foreign growth to such an extent that the superb examples that we speak of are not to be seen in the fruit shops. It is to be hoped that some change may be made in this respect.

Culture.

Mr. Dancer feeds his fruit trees with the rich food which we generally think they do not require. Heavily cropped trees are found to thrive on stable manure much as vegetables do. Generally an opposite idea prevails in gardens, and our fruit trees are very often starved. Frequently when a good crop is set the trees are not able to grow the fruit to more than half its natural size. In America, the greatest of fruit-growing countries, the necessity of manure and cultivation is generally recognised. The ground at Chiswick has to be cultivated for the crops that grow below the trees. Where trees are grown without crops beneath, dressings of manure on the surface would suffice for years, provided the soil has been properly chosen and prepared at first. We have a great deal to learn about hardy fruit management, and one of the most needed changes is from starvation to food and culture.

Pruning.

There are few subjects on which more stupid error has been taught and practised than on that of pruning. Mr. Dancer's rule is to prune very little; and that little is confined to thinning the branches and branchlets of the trees. All mutilation and cutting back he finds injurious to the trees and fatal to the chances of good crops. All this, be it observed, refers to bush or standard trees. On walls trees should be trained carefully, if they are to be either creditable or productive. Very heavy crops are good pruners. Mr. Dancer paid this year £30 for stakes wherewith to prop the heavily-laden branches of his standard Plum trees. Notwithstanding this, many of the trees actually broke down with the weight of the fruit. Where trees are fertile to this extent the pruner's labours are not the same as where little but wood is produced. In gardens where trees go to wood and not to fruit, the best cure would often be to cease shortening them back, and allow them a chance of developing the bearing portion of their growth.

The True Paradise Stock.

Mr. Dancer gave a fair trial to this when Messrs. Rivers, Hogg, Pearson, and others pronounced it useless, and is now reaping the result. He, like others, has proved it to be the best of all the dwarfing stocks—so good, in fact, that nobody would believe its effects who had not seen a plantation of small trees upon it. I have never seen anything more beautiful than a line of Reinette de Caux Apple grafted on the true Paradise, the trees (about a yard high) bearing "ropes" of noble fruit on every branch; so it is with the Stirling Castle, and every other variety tried on this stock by Mr. Dancer. A plantation of 400 little trees of Cox's Orange Pippin, planted at 6 feet apart, bears abundantly the finest fruit I have ever seen of that variety. On this stock, and in a small space, all the noblest Apples may be grown without more shading than occurs from a plantation of Gooseberries. It is, therefore, the stock of all others for gardens, particularly those on heavy or wet soils, where trees on the Apple, or on other kind of stocks are apt to grow too much to wood; and, as a collection sufficient for the winter supply of a small family may be grown on a space not larger than a room in an ordinary house, it is the best of all stocks for amateurs.

KEEPING APPLES FOR DAILY USE.

The question is often asked—What is the best way to keep Apples for ordinary family use? We have always found central shelves in an apartment devoted to this purpose the most convenient. The Apples are spread on these shelves, only a few inches deep, so that they may be readily examined or picked over as fast as decay commences in any specimens. It is very important that the Apples be kept as cool as practicable after gathering in autumn and before the freezing weather of winter arrives. For this purpose they are placed on the floor of an out-house facing the north, and allowed to remain there till about the time that frosty weather commences, when they are removed to the shelves of the fruit-room in the basement of the house. This fruit-room (which is about 10 feet wide and 30 feet long) is separated from the rest of the basement by an 8-inch brick wall, and has a cement bottom to keep the air dry enough. Windows for ventilation are hung on hinges, so that they may be opened or closed to any desired degree, for the regulation of the temperature by the thermometer. The nearer this temperature is to freezing the better the fruit will keep. When the weather is warm outside the windows are closed to exclude the warm air; when colder, they are opened sufficiently to admit cool air and keep down the temperature. The Apples being thinly spread on the shelves, any decaying specimens are readily detected and removed, care being taken not to injure or disturb the sound Apples which remain. An examination every few weeks during winter and spring will keep the supply clear of rotten Apples. Among the advantages of this mode is the readiness with which the specimens which will not keep are separated from the others, only long keepers being allowed to remain. When fruit is kept headed up in barrels, which is a common mode, this selection and separation cannot be made; and, while they keep better thus excluded from the air so long as all remain sound, the commencement of decay in a few specimens soon spoils all the rest. A little practice will enable the attendant to detect those specimens which will not keep, even before decay begins; and, by going over the shelves several times during winter and spring, none but sound, long keepers are left. As warm weather approaches, and it becomes more difficult to keep the apartment so cold as may be desirable for the fruit, a portion of the soundest and hardest are selected and placed in shallow boxes kept under the lower shelf, on the bottom of the cellar. The cold cellar bottom keeps them at a low temperature, and the shelf above serves as a cover, to prevent air currents. According to the "Albany Cultivator," the three leading requisites for success are—1. Placing the Apples in a cool outhouse in autumn till frost sets in. 2. Removal of decaying specimens from the shelves. 3. Keeping the temperature as low as practicable without freezing, by a proper adjustment of the hanging windows.

THE WHITE CALVILLE APPLE IN SUSSEX.

The Apples on the Paradise stock and trained as cordons are again very fine this year in Mr. Northall Laurie's garden, at Pax Hill Park, Hayward's Heath. From the first year of the trial of the Apples on the Paradise in this garden they have yielded fine fruits, and justified the highest hopes of the planter. The White Calville, the most delicate and highly esteemed of the Apples grown in this way (and, we may add, the highest-priced of all Apples) has thriven remarkably well—indeed, the Calville fruits were as good as those raised about Paris. To succeed with the White Calville it is necessary to have it on the Paradise stock, and to plant it against south or west walls, where there is a little bare space on which to train the branches. In most gardens there is some unoccupied corner which may be utilised in this way. V.

The White Calville.

Tomatoes v. Wasps.—There seems no doubt about the efficacy of Tomatoes in keeping away wasps indoors, although naturally they would be less powerful in the open air. For the last two years there has not been a wasp in the Vinery here, and Tomatoes during the whole time were growing in it. This year there were none, and the wasps had it all their own way until the Grapes were put into muslin bags—a most troublesome process in a large Vinery, and not always successful if the muslin is thin; I think, also, that it is apt to cause damp. Three years ago no Tomatoes were planted in the Vinery, and the plague of wasps was excessive.—H. G.

Bees and Fruit.—As nothing has appeared in The Garden on this subject since Mr. Westland's note (see p. 224) perhaps you would allow me space for a few words. The season of 1874, was a pretty good one for honey gathering in this neighbourhood, and bees did little or no damage to fruit. This year they have been on the point of starvation since about the end of May, and every kind of hardy fruit (except Currants) has been attacked by them. About the first of this month I began to give them their food for the winter, when they immediatly left the Peaches and Nectarines, and I have not seen a single bee at them since. I therefore conclude that bees will not take fruit unless they are in want. A few pounds of sugar made into syrup, and placed near choice fruits would save a great quantity from being spoiled by bees and wasps. I do not think that the presence of wasps keeps off the the honey bee; neither appears te be afraid of the other until it comes to fighting, and then the bee is generally victorious.—Thomas Smith, *Henbury Hill, Bristol.*

Late Peaches, Nectarines, and Plums.—The Walburton Admirable Peach is invaluable for affording a supply towards the end of September and the early part of October. In colour, size, and flavour, it closely resembles that old favourite, the Noblesse, which is probably the best flavoured and most luscious of all Peaches. With these qualities to recommend it, and the additional one of prolonging the Peach season till the middle of October, little more need be said in its favour; and anyone planting for a late supply should not lose sight of this sterling Peach. We have several fine trees of it laden with fruit, and, under the same conditions as to soil or situation, some of Téton de Venus and Late Admirable, but although the two latter are remarkably fine in appearance they will not bear comparison with the Walburton as to flavour. To precede this variety, and to bridge over the ripening period of the summer Peaches till it comes in, the Barrington is by far the best, and most satisfactory kind to grow. This Peach is always highly coloured, and, being large, is very showy. Although not equal in flavour to such as Royal George, it is the best Peach for that particular season. Of Nectarines for late use, the best with us have been the Hardwicke Seedling and the Pitmaston Orange, the latter being one of the largest, richest, and most handsome Nectarines known, and good alike for either indoor or outdoor cultivation. The tree is of vigorous habit, having large handsome flowers when in bloom, which always set freely, rendering it one of the most prolific of all Nectarines. The same may be said of the Hardwicke Seedling, and, although not equalling the Pitmaston in flavour, it is a most valuable high-class Nectarine. No garden, having room for a tree on a suitable aspect, should fail to grow this variety. For autumn Plums, nothing can equal the Jefferson, Coe's, and Reine Claude de Bavay; and these three are sufficient to afford a supply at that particular season. The Jefferson is one of the handsomest and richest-looking of all Plums, and does remarkably well on west walls, while Coe's, and the Reine Claude de Bavay require, and really deserve, a better aspect to develop their colour and flavour. Reine Claude de Bavay has all the good qualities of the Greengage, but is larger, and ripens in October.—J. Sheppard, *Woolverstone.*

A Low Temperature Unsuitable for Muscats.—About a third of a Vinery here is planted with Muscats at the warmer end; all the others, except the third Vine at the cooler end, which is also a Muscat, being Hamburghs. As a rule, the night temperature of the house when the Vines were in flower and setting, was about 65°. Sometimes we could not get it so hot as we could have wished, as there are only two pipes in the house. The result is that the Muscats at the warmer end set perfectly, whereas, in the bunches of those at the cooler end, there was a greater proportion of unset berries. The difference between the "set" of the Muscat at the one end of the house and at the other, shows that Muscats do not set satisfactorily in too cool a temperature.—J. M.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Utilising Walls for Fruit Trees.—I recently saw a good specimen of this at Wainford Mills, on the borders of Norfolk. The mills and store-houses, which were very high, were entirely covered with Pears and Cherries; the crop of the latter was over, but the crop of Pears was enormous. The trees were trained horizontally, and must have yielded many sacks of fine fruit.—J. Groom, *Henham Hall.*

Duchesse d'Angouleme in England.—We fear we have done scant justice to this Pear, fearing that the climate was not warm enough for it. We find, however, it is of fair quality in Kent, and it is abundant in the fruit shops at Tunbridge Wells. The fruit, however, though good, is not so fine as that one sees in France, nor nearly so good as those sent us from Virginia last year. It is clearly a Pear greatly influenced by climate, and, though useless in cold parts of England, worth a place on favourable parts of the south.

The Best Late Peach.—I have always understood that Walburton Admirable was an uncertain bearer; it is, however, acknowledged on all hands to be a very fine fruit, but whether it is the best late Peach, all things considered, I have some doubt; at all events, it has a dangerous rival in Princess of Wales (Rivers). Last year this variety lasted some time into October, and this year the same tree, on a south wall, is carrying a splendid crop of fine fruit, which will probably last till the middle of the month, only a few of the fruits being yet ripe; its quality is excellent.—W. R.

Knight's Monarch Pear (see p. 296).—The great drawback in this otherwise excellent variety is its tendency to drop prematurely. It has been tried under all forms of culture in different parts of Worcestershire with the same result. Even on walls complaint is made of it, but it has not been tried here as an espalier or bush, and, before finally condemning it, perhaps an attempt should be made to cultivate it in these forms, both on the Pear and Quince stocks. It is said not to succeed on the Quince, but if it does so, especially when double grafted, I should have more confidence in the result.—W. R., *Kidderminster.*

The Miller (Le Meunier) in Peach Trees.—Can any of your readers furnish me with information as to the periods and date of appearance of this malady, which is said to attack the Peach trees at Montreuil, near Paris, covering the twigs with a white meal-like powder (whence the name "the Miller"), and doing much mischief to the crop.—C.

TREES AND SHRUBS.

The Umbrella Pine (Sciadopitys verticillata).—It does not appear to be generally known that this fine Japanese Conifer, so distinct in habit and yet so beautiful, is hardy in sheltered positions on well-drained soils, as far north as Edinburgh. Two healthy little specimens of it in the Botanic Gardens there, planted out some four years ago, are thriving most satisfactorily. There are, at least, two distinct forms of this plant in cultivation, one being dense in habit, and the other more lax and luxuriant.—B.

The Weeping Hemlock Spruce.—Mr. Samuel B. Parsons writes to us from Flushing, Long Island, praising the beauty of the Weeping Hemlock (Abies canadensis var. pendula). The ordinary form of the Hemlock is a very graceful tree, and this new one will prove a welcome addition to our pleasure grounds. We have never been able to understand the reason why the Hemlock tree, which does so well in the cold regions of North America, thrives so poorly in our gardens. With us it is frequently surpassed in stature by the Western Arbor-vitæ, which is naturally a much smaller tree, inhabiting the same regions as the Hemlock.

Variability of Conifers from Seed.—Of this some striking examples may now be seen in Mr. Methven's Nursery, Edinburgh, among Lawson Cypresses raised from imported seed. Among those plants possessing the most diverse habits and colours, I noted the following forms, viz.:—1. Cupressus Lawsoniana, the dark green type, with drooping leaves, and a rather lax habit. 2. C. L. erecta-viridis, a dense-habited bright green Thuja-like shrub, of erect, almost rigid, habit. 3. C. L. nana, a very dwarf glaucous form. 4. C. L. flaccida, a greenish glaucous variety, almost pendulous. 5. C. L. glauca, a variety nearly like the type in habit, but of a distinct bluish colour. Besides these there were many other forms more or less intermediate between them, but those numbered are quite as distinct as are many of the so-called species of Abies or Pinus.—F. W. B.

Phosphorescence in Decaying Trees.—A fine display of this light may now be seen nightly upon a fallen tree in Shawdon Den. The tree is a large Ash that was uprooted by the wind some time ago, and is now, with the exception of the roots, entirely covered with Fungus; from the decayed extremity of one of these roots a phosphorescent light of singular brightness is emitted. At 200 yards' distance it appears very like the light of a candle, indeed, several persons passing that way have mistaken it for such; the luminous spot is so small that the palm of the hand will cover it. Small pieces of the timber taken from it and placed in a dark room, appear like glow-worms. Unlike the *ignis fatuus*, the most remarkable thing about this light is its steady brilliance.—J. Thomson, *Shawdon.*

Wood in the North.—The last general measurement gave an area covered with forest in Sweden of about 30,000,000 acres, being 42·8 per cent. of the whole surface of the country, and this is exclusive of Lapland, which has never been surveyed. Taking the average of estimates given by the best available authorities, the annual consumption of forest produce may be computed at 7,950,133 Swedish cords. In other words, the product of about 30,000 acres is annually consumed, the period of re-growth being 100 years. In 1872, Sweden exported about £4,779,137 worth of timber and fashioned wood, and of this quantity Great Britain took £2,363,652 worth, or nearly one-half of the whole export of the country. There is hardly a maritime country in the world, with the exception of China and Japan, to which the produce of Swedish forests does not appear to find its way. The forest lands of Norway cover about 35,000 square miles. Britain again takes about half the produce.

NOTES AND QUESTIONS ON TREES AND SHRUBS.

Weigelas.—Why does not this succeed better than it does in the London park gardens? Is it not owing to the soil? It is perfectly hardy at Newport, Salop; and in a little pond island at Wotton, near Dorking, it forms quite a large tree. I long to see bushes of the various new Weigelas, which are said to be so beautiful.—An Old Cockney.

Aralias as Town Shrubs.—In Merrion Square, Dublin, I have noticed fine vigorous young trees or shrubs of Aralia japonica, which are in good bloom after a very trying fortnight of equinoctial weather. There are few small-sized deciduous trees more suited for ornamenting town parks and squares than this and A. spinosa, the foliage of which is graceful and effective throughout the summer, and till the approach of winter. Just now, those mentioned are much admired by residents in the squares and passers-by.—John Adair.

Trees Killed by Ivy.—In woodland scenery everyone is familiar with the effect produced by the Honeysuckle and Ivy; but, unfortunately, the Ivy clings with a tenacity that slowly but surely destroys the life of its support. We have an instance of it here in the case of a fine specimen of Acacia Robinia, the dark green Ivy on which forms a pleasing contrast to the feathery foliage of the Acacia, but the decreasing growth of the latter warns us that the Ivy must either be removed, or the tree allowed to die.—E. Hobday, *Ramsey Abbey.*

THE FALLING OF THE DEW.

Comparatively few amongst the many who profess to be careful observers of natural phenomena have attained to a moderate knowledge of the formation of dew. It is often—indeed, commonly—said that the dew "falls," and the observation is allowed to pass even by persons who know full well that it does not fall, the acquiescence being partly due to the prevalence of erroneous notions on the subject, and partly to the difficulty of establishing better notions in their stead. This is a subject (says the "Gardeners' Magazine") of such importance that it should have some amount of attention from all lovers of the country, and especially from such as are employed in outdoor business, whether in the forest, the field, or the garden. The most casual observation will convince anyone that between dew and rain there must be an essential difference, for rain certainly falls, and we see the clouds that produce it; but we do not see the dew fall, and its appearance is not accounted for by clouds as the appearance of rain is, for, in truth, the clear moonlight night is the very time when dew appears most copiously; so that the early walker amongst long Grass may be properly warned to go out protected by means of water boots. The time to look for a heavy dew or a thick crust of beautiful hoar frost is when there are no clouds, when the barometer is high, the air calm and, comparatively speaking, *dry* and cold—while the earth and its belongings, such as Grass, trees, &c., are comparatively warm. On cloudy nights, when a "fall" of something might be expected, there is little dew or none at all. In warm damp weather the deposit of dew amounts to almost nothing, but there may occur rain, and, of course, rain and dew are sometimes confounded as one and the same thing. If you will make a careful search at early morn during this delightful autumn weather, you will find that different parts of the garden vary in the amount of dew to be found on herbage in the morning. In this investigation it will be observed that the dew corresponds with the rain in this respect—that objects screened from one are also screened from the other. For example, the herbage fully exposed to the heavens—as, for example, Grass—will be found the most heavily burdened with the moisture of the dew, while that beneath trees will be nearly dry. If you will fix an umbrella in the ground in the most open part of the Grass, the herbage beneath it will in like manner be found in the morning comparatively dry. Dew neither falls nor rises, but is actually formed where it is found by condensation from the circumjacent atmosphere. The whole theory of dew is complicated, and to understand it one must also understand something of the nature of heat and its effect on various bodies; we must thoroughly comprehend the phenomena of radiation and latent heat and their mutual relations, and yet without mastering these somewhat occult subjects one may attain to a useful degree of knowledge of the philosophy of dew.

The day has been hot and clear. The heat has caused a continual separation, from the herbage and the earth, of moisture, which has been instantly taken up by the atmosphere. It went away invisibly, and it is still invisible. Now, the atmosphere is capable of retaining moisture in an invisible form in proportion to its temperature. We will suppose that at 70° it can hold, in a given space, a given number of grains—say 100; but at 60° its capacity is diminished, and it can hold only 90 grains. It follows that in changing from 70° to 60° the atmosphere, in the same given space, must part with 10 grains of water. It must be admitted that these 10 grains may fall as rain or be condensed as dew; and let us consider how the formation of dew might be brought about. Here is a Grass field which all day has been absorbing heat from the sun, the Grass is warm, and the air about it is warm; but darkness comes, the Grass radiates into space much of the heat it had absorbed, and becomes colder and colder. Constantly there passes over it the warm air highly charged with the invisible moisture the sun has helped it to absorb. But, as it passes over the blades of Grass the air is cooled and parts with some of its moisture, for it comes to the Grass—say, at 70°—is soon cooled to 60°, and the supposed 10 grains of water are condensed, or, as it were, melted out of it. The story is not all told by this bald explanation, for the theory of dew, as remarked above, is extremely complicated; but, nevertheless, this bald explanation fairly represents the truth of the whole case—that dew does not fall or rise, but is condensed or produced on the spot where found, as the result of radiation from the earth and change of temperature, which implies change of water-carrying capacity in the air that comes into contact with the cooling surface.

The subject of radiation is full of interest and importance. Bright bodies absorb and reflect heat freely, but they do not radiate heat with any such energies as those that have a dull surface. So also bodies that have a light colour absorb and reflect heat with energy, but radiate languidly; and they correspond in radiating power with their power of condensing dew; in fact, as the condensation of moisture upon them is the necessary effect of radiation, it cannot be otherwise. But evaporation plays a part in the business, as must be evident from the fact that water is the principal performer in the deposition of dew. The blade of Grass has parted with some of its heat, and in doing so has cooled the air as it swept softly by. The air in cooling has parted with some of its suspended moisture, and now the blade of Grass is wet. Thereupon, as a matter of course, evaporation of water from the leaf begins, while deposition proceeds at the same time. The evaporation is of course feeble, because the air that is parting with moisture cannot be disposed to absorb moisture at the same time. But the truth is we are not dealing with one and the same body of air all through; the air is a moving mass, and as night wears on a current of air as cold as the leaf itself may pass over it, when deposition of dew will cease, and again warmer currents may follow and dew be again deposited, and in these alternations of temperature of the air evaporation in common with condensation will be sometimes promoted, sometimes retarded, and sometimes will take place simultaneously with condensation. It is of importance, however, to notice that whenever and wherever evaporation takes place a cooling of the evaporating surface is inevitable. In one sense at least, evaporation is simply a carrying away of heat into the atmosphere. In scientific terms, evaporation mainly consists in the conversion of sensible into latent heat. The blade of Grass is consequently cooled both by radiation of heat and by evaporation of moisture from it. The result is that there are two causes in operation to render it receptive of dew, for what it loses in the way of moisture by evaporation is compensated for by increased condensation resulting from the lowering of temperature by evaporation. When we enter minutely into the relative action of radiation and evaporation, the case becomes extremely complicated, and necessarily demands a knowledge of mathematics as well as of chemistry. But, as explained thus far, it may certainly be understood by any person of average capacity. The question will arise, why the dew should be copiously deposited on a clear night, and quite scantily when clouds prevail? It will be remembered, however, that on a clear night the temperature is usually lower than on a cloudy night, and the gardener who has to care for tender plants is particularly anxious about his fire on a winter night when the stars shine brightly. On a clear night the whole surface of the earth, so far as darkness and a clear atmosphere extend, is cooled by radiation, and, of course, the air in contact with the earth is cooled too. In summer the consequence is a heavy dew; in winter, a heavy hoar frost. But, whenever or wherever clouds prevail, radiation is arrested; there is less dew, less hoar frost; the night, relative to the season and the direction of the wind, is warmer. This puzzles many observant people, but the explanation is very simple: the clouds arrest radiation and so prevent escape of warmth. What have the clouds to do with it? Surely the blade of Grass is as ready to radiate as ever, and the air passing over it is as ready to be cooled and so robbed of its moisture. Yes, such is the case, and, as regards the disposition of the Grass and the air the cloud has no effect whatever. But the fact is, the cloud, as respects its power to absorb heat and reflect heat and radiate heat, is like the earth or the Grass or any other solid body, and it is the radiation of heat from the cloud to the earth that makes all the difference. If the earth and the cloud radiate heat to each other each must, in some degree, neutralise the effect of the other, and the result must be that the temperature of the air between them cannot be greatly affected and, consequently, there cannot be a heavy deposition of dew. The copiousness of dew on a clear night and its scarcity when clouds prevail should suffice to teach us that it does not fall; for, were it the result of fallen moisture, the cloud should favour plenteousness instead of producing scarcity.

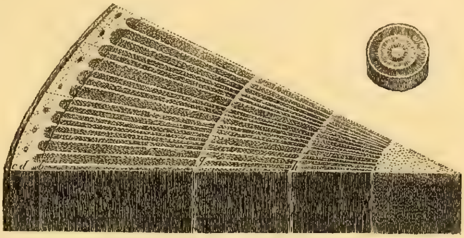
There is a most instructive experiment which everybody has performed, though few have recognised its teaching, which may be referred to as illustrative of the subject. Into a hot room we take a cold dry glass vessel of any kind—say, a heavy drinking glass. Instantly, it becomes covered with moisture, and that moisture is veritable dew. Do not touch it and presently it will disappear. Whence came it, and whither has it gone? Why and how should it thus appear suddenly and as suddenly vanish? The glass vessel was cooler than the air into which it was taken. It came, say, from a closet, the temperature of which was 60°, into a room the temperature of which was 70°, and the air in passing over it was cooled by the contact, and had to part with the hypothetical 10 grains of water, as in the case of the blade of Grass in the open field. But by degrees the glass absorbed heat from the air and, in fact, the water condensed upon it actually contained the 10° lost by the contact. And as the glass acquired the same temperature as the air the deposition of dew ceased and evaporation commenced, and thus the glass soon became dry. To say that in such a case the dew had either fallen or risen would be to talk nonsense—pardonable enough in some cases, but not always so.

Autumn Foliage.—When in Edinburgh, a week or two ago, I noticed several trees, in the Botanic Gardens there, remarkable for their handsomely-coloured leaves. A Pavia flava and one or two others were bright orange in colour, relieved here and there by great splashes of vermilion and russet. The Sugar Maple (Acer saccharinum) and the Scotch Laburnum were also beautifully coloured, but the handsomest of all were the Liquidambars, some branches of which were literally crimson and gold. Such vivid colours intermixed with deep green-leaved Oaks, Conifers, and Planes, are strikingly effective, and should not be overlooked by planters.—F. W. B.

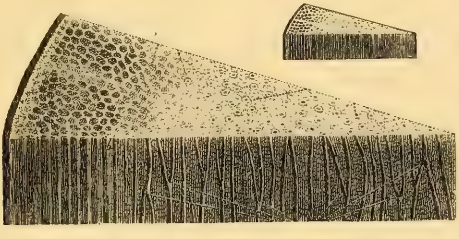
EXOGENOUS AND ENDOGENOUS STEMS.

Will you kindly inform me what are the principal distinctions between the stems of exogenous and endogenous plants?—W. J.

[Exogenous stems grow from the outside—*i.e.*, from the centre outwardly towards the circumference, and are, consequently, hardest and densest at the centre. They branch freely, and the leaves all have more or less netted veins. All our native British trees are of this class. Endogenous plants, on the contrary, grow from a terminal point or bud, and increase in diameter by the addition of woody vessels towards their interior, the outer part being the oldest and hardest. They are very rarely branched, their leaves have parallel veins, and, from a practical point of view, it may be interesting to note that, while exogenous stems may be grafted with facility, endogenous plants cannot be propagated in that manner. The seed affords another characteristic distinction: most exogenous plants have two cotyledons, or seed leaves; while endogenous plants have but one, and their mode of germination is also different.—B.]



Section of an Exogenous Stem.



Section of an Endogenous Stem.

Poisoning by the Roots of Laburnum.—On the 3rd of August, before breakfast, fifty-eight boys in the Forest Gate Industrial School chewed varying quantities of the roots of an old Laburnum tree, which had been cut across the preceding afternoon, they mistaking it for stick liquorice, which it certainly resembles in smell; in a very short time these boys were seized with symptoms of narcotic poisoning, varying in severity from simple sleepiness to complete stupor. They were promptly attended to and all cured, though not without difficulty in several cases.

THE AURICULA.

The exhibition of Auriculas at Manchester, in the month of May last, under the auspices of the National Auricula Society, and the publicity given to its proceedings, have done much to press the claims of this favourite flower upon the attention of all interested in spring-blooming plants. The Auricula is a flower that was at one time very popular, and largely grown. Then it suffered a reverse; and, had it not been for certain florists—men who had a keen insight into, and regard for, its peculiar beauty—it would ere now have almost died out. Some varieties, indeed, have become wholly lost; others have been so reduced as to be in the hands of only two or three growers; and to obtain a plant of them is almost an impossibility. One case may be quoted. A self-coloured flower, named Redmayne's Metropolitan, was raised about 1775, and introduced to cultivation (for it is a work of time to obtain a stock of any one variety) about the year 1780, by a florist named Tottle. A florist by the name of Heyes, of Castleton Moor, Lancashire, obtained it, and sold it under the name of Apollo, by which name it is now said to be more generally known than by the true one. It is a singular fact that fifty years, or so, ago, this variety was so plentiful that it became a common border flower, and was sold in Lancashire at 2d. per plant. It is said that there are now only four or five plants of it known to be in cultivation; and that as much as a guinea has recently been paid for one. It is quite certain that Auriculas are fast becoming much better appreciated than they were, and that the demand for varieties is far in excess of the number on sale. The Auricula is called an Alpine or mountain plant because it is not only a native of the Alps, but because it grows and thrives best in airy and elevated situations. In low places, surrounded with damp and fog, it is difficult to keep it even in tolerable health, or to get from it any fine bloom. Whoever, therefore, attempts to grow Auriculas under such conditions, should keep them during the winter in frames, raised at least 2 or 3 feet above the level of the ground, and allow them all the air possible, but a very scanty supply of water during the winter months. Art and culture may effect a great deal in the way of cultivating this plant; they cannot altogether change its nature and habits. Auriculas are divided into four classes—green-edged, grey-edged, white-edged, and self. The three former have a yellow or golden throat or centre, which should be as deep a yellow as possible to constitute a perfect flower; then a circle of white, covered with a farina-like paste, which should be white, mealy, and solid; then a zone or circle of body colour, of dark purple-chocolate, violet, or purple-red, and then light shades, the outer edge being green, grey, or white respectively. The green-edged flowers are readily known; but it requires experience to detect the almost imperceptible difference which exists between a grey-edged and a white-edged flower, for the distinction is a very nice one. The self-flowers are the same, as regards the yellow throat and paste; but that part of the flower occupied in the edged varieties by body colour and edges is composed of a self-colour of various shades, such as black, purple, crimson, red, mauve, blue, and yellow. There is yet a fifth class, denominated Alpines, and distinct from those before described, which are known as show Auriculas. Whether the original Auricula, introduced from the Alps, was in the form of a show-flower, or in that of the Alpine of the present day, is a matter of speculation; but both have originated from it, and growers of the show Auricula state that seed saved from the very finest flowers in the edged sections will frequently produce Alpine varieties. We have also self-coloured Auriculas that are undoubted hybrids between the self show forms and the Alpine. The Alpine flowers have either a white or a golden centre, or ground colour, instead of the white paste of the Auricula; and the remainder of the flower, *i.e.*, the margin, a body colour, is richly shaded with violet, crimson, maroon, mauve, and other shades. According to the laws of properties of flowers, observed by the strict florist, the self show Auricula must have a white centre; and the margin must be of one colour only, not shaded, as in the case of a deep velvety maroon hue, shading off to a pale red on the margin. On the other hand, the Alpine Auricula should have a golden centre, though a white one is now admissible; and the margin should be shaded, and the dividing line between the two tints set forth as distinctly as possible. Of late years, the Alpine section have received many valuable additions in the form of splendid seedlings, raised by Mr. Charles Turner, the Royal Nursery, Slough, and others. A fine green-edged Auricula may be briefly and simply described as follows:—Every part must be in exact proportion one to the other; the flower-stalks must be proportionate to the leaves, and the pedicels and truss proportionate to both; the prevailing or body colour must be bright and distinct; the ground circular, and of a clear white; the throat golden; the border or edging round the petal of a lively green, and all the petals or pips nearly of a size, perfectly level, and disposed in regular order; the eye, the tube, and the rim must correspond one with the other, and be perfectly symmetrical throughout. Mere size of pip, as the individual flowers on the truss are termed, is as nothing compared to regularity of marking and symmetry of parts, even if the pip be small; and, in the north of England, in all cases of competition, the flowers are, on the exhibition table, most rigidly judged.

Judging Auriculas.

Some of the regulations, as regards judging Auriculas, are not a little remarkable. In all cases where two or more flowers are shown in a class, they are denominated "pans," and all plants in the "pans" must not have less than five expanded pips; those in all the premier classes, where single plants are shown, must have not less than three. It is rarely indeed that the northern growers show their flowers with more than five or less than three pips on them. Size of truss is of no consideration, if quality be wanting; and so it is the northern custom to cut out all inferior pips, leaving only the best. In the south, our exhibitors like to show large, full, and bold trusses. They like a certain amount of decorative effect; but the northern grower will have none of it. He must and will have absolute excellence and a high class quality in his flower, or he will have nothing at all. Another regulation is that the trusses be shown free from all artificial packing and supports—that is, the truss of flowers must be borne on an upright stiff stem that needs no support to keep it in an erect position. The leading amateur cultivator of the Auricula in this country—the Rev. F. D. Horner, Kirkby Malzeard, Ripon—thus writes in support of the rule that the Auricula should have no support on the exhibition table:—"For my own part, I think no Auricula at an exhibition ought to need props and crutches for its support. There is not a flower of my own growth that I ever have to tie up, either on the home-stage or for exhibition. None of our florists' sorts that I know of, except Blackbird and Moore's Violet, have long stems, and Imperator sometimes leans over. Plants that need supports have either been badly grown, by not being allowed air enough (and thus the exhibitor deserves to suffer), or they are sorts with leggy stems, which is a fault in any variety. In the case of Turner's Charles Perry, which always throws a large truss, there is too much stuff in it to fit it for the exhibition table when all the pips are left on—pips that only add useless weight, and without which the truss, properly adjusted, would look no smaller, and be far neater, every good pip shewing its properties to the eye at once. This distinctness and neatness goes farther than mere bunchiness; besides which a full head of pips are never of equal size and properties. The Auricula is the most easily disfigured of any plant by sticks and supports. It is the model of elegance, and may have been the plant from which the idea of the epergne was obtained, though that is but my fancy; but I do not know what support could be allowed without seriously detracting from the native grace and beauty of the plant. The northern rule is not in any way intended to harass dashing growers by saying they shall not support their splendid heads. It is simply to obviate any unfair dealing, whereby a flower might, by certain marks, be known as a particular exhibitor's. No one is supposed to grow his flowers so carelessly that the stems get drawn till the heads droop. I never have a stick in my Auricula pots, nor have I seen them used. Even my Blackbirds hold up their heads, for I take care to have them, as well as Moore's Violet and Imperator, nearest to the inlets of air on my stage. Good packing of plants for the show never allows of trusses getting shaken so as to lose elasticity of stem; wherefore I am for the Auricula being shown in all its own naked beauty."

Thus there is much that is forcible to be said from the northern point of view, and in the interests of fine cultivation. Exhibitors at a distance from the place of exhibition do not take their plants in pots—I am dwelling now on the practice observed at the annual exhibition of the National Auricula Society—the plants are turned out of the pots, leaving a good ball of soil about the roots, and they are then tied up carefully in damp Moss, packed close together in boxes, which are kept perfectly upright in the course of transit; and, when their destination is reached, pots and soil are provided. The plants are then re-potted, some damp Moss is laid over the surface, and they are staged ready for the judges. It was a most interesting sight to be in the Town Hall at Manchester on the occasion of the recent exhibition of the National Auricula Society, watching the incoming of the exhibitors, and noticing the systematic way in which they went to work staging their plants in their several classes, ready for the inspection of the judges. Many of them were Lancashire operatives, among whom there is a deep-seated love for flowers; and they brought their plants, some only one, others three or four, in boxes, in baskets, and some tied up in handkerchiefs and cloths, as if they were carrying home loaves of bread from the baker's. When the work of staging was done they gathered themselves into groups, canvassing the merits of the different flowers, and interchanging opinions as to any novelties in the way of newer varieties that might have been produced. The Lancashire operatives have long been unrivalled cultivators. When this flower was first introduced into Lancashire is not known, but it is supposed to have been during the religious persecutions in Flanders, when the Flemish weavers, driven by cruelties from their native land, came to England about 1570, and settled in Norwich and Lancashire. In 1725, the Auricula was extensively grown by the florists of Middleton and the surrounding towns and villages, the cultivators being hand-loom weavers; a noted man among them died at an advanced age a few months ago—Robert Lancashire, the raiser of that fine Auricula Lancashire's Hero, now better known as Cheetham's Lancashire Hero.

The Cultivation of the Auricula.

At the season of the year which may be denominated the florists' midsummer (generally from the second week in July to the second week in August) the cultivator of the Auricula busies himself in re-potting his flowers. Growers of this beautiful and fascinating flower differ in opinion as to the best time for potting, some doing it earlier in the season than others. Circumstances affect the time for accomplishing this in some degree. If a grower wishes to get seed from certain fine varieties he will not care to disturb his plants till they have ripened the seed pods, and they will do this sooner or later, according to the weather and the time of flowering. It may be stated that Auriculas are invariably flowered in a cold frame or in a low house erected in some cool shaded corner; when they have gone out of bloom they are placed in a cold frame on an ash bottom and the lights removed; the plants are thus exposed to the air and summer showers, but, if very heavy or continuous rains come on, it is always best to put the lights on the frame to throw off the wet from the plants, raising them on one side or at one end in such a way so that plenty of air can circulate among the plants. During the spring side growths are made, being thrown off from the main stems of the plant just below the soil. During the time the plants are in the cold frame, after the blooming season, these shoots throw out little rootlets, and when taken off at the time of re-potting, and potted off singly in small pots, they soon grow into fine young plants. It it singular to note how certain varieties of the show or edged Auricula vary as regards the freedom with which they produce these side growths. That fine old northern Auricula cultivator, the late Mr. George Lightbody, of Falkirk, once wrote:—"Some of our fine show Auriculas are so inclined to split into increase that, except rubbing off the eyes when decayed leaves are removed, and other expedients which are resorted to, plants of this habit cannot be kept up to blooming size. Persons wishing to keep their collection in proper order for bloom should not allow many offsets to form. My own practice is never to allow more than two offsets to form at one time on the strongest growers, and only one on the weaker; offsets of this description can be got up to blooming size in a year or two, whereas, when a plant is allowed to run wild, it will take many years to bring its progeny into that condition." It is not a little remarkable that some of our finest Auriculas throw offsets very sparingly indeed, and I well remember, when making a visit to Slough last spring, having two or three vigorous-looking plants that had not thrown off an offset for years. But to return to the matter of re-potting, and first, as to the soil. The northern growers are great sticklers for cow dung as a prime ingredient in the compost used for the Auricula, but it must be so thoroughly rotted as to readily crumble to pieces; it requires to be carefully looked over so as to pick out from it any grubs likely to inflict injury on the plants. I think they still use the cow dung to some extent, but the southern growers now ignore it almost entirely, and prefer to mix with their compost some well-decomposed stable and other manure from a spent Melon or Cucumber-frame. They assert that cow manure is apt to become the breeding place of many grubs, that work sad havoc with the plants, much more so than the stable manure. A good compost for Auriculas is made up of one-fourth of decomposed manure, one-fourth of leaf soil, and one-half fibrous turf, or the top spit of a pasture that has laid by for a year or so and become thoroughly rotten. The practice usually adopted, and it is a good one, is to mix these ingredients together some time before they are used, and to turn them over occasionally so as to become thoroughly sweetened. There is no necessity for sifting the fibrous turf; it is a great mistake to suppose that the soil for Auriculas should be fine. The best thing to do is to pick it to pieces with the hand or chop it up with a spade, and it is of no importance if some of the pieces are as large as Walnuts, for the roots of the Auricula appear to like to cling to the pieces of turf, and no doubt derive considerable advantage from doing so. We are treating now of the soil suited for the show or stage Auriculas, as the edged and self varieties are termed. The old florists used to recommend silver sand to mix with the soil for the purpose of keeping it open and porous. The modern cultivators, or some of them, at least, have given up the use of sand, believing it to be, at best, but a negative mechanical agent, and have substituted for it powdered charcoal, which they look upon as an active chemical agent of a decidedly beneficial character. They are unquestionably right in advocating this change, inasmuch as charcoal, when mixed with soil, yields valuable nourishment to growing plants.

When to Re-pot.

This important operation much depends on the locality, the season, and the forwardness, or the reverse, of the plants. By locality is mainly meant the difference between north and south; and it is a fact in connection with the culture of the Auricula, as also with the Tulip, Carnation, and Picotee—that it is very difficult indeed for the northern and southern growers to meet in friendly rivalry, owing to the time of blooming being three weeks later in the north-midland and northern districts than it is in the south, taking London and its district as a fair test of the south. Mr. Turner, of Slough, the foremost southern cultivator of the Auricula, commences to re-pot his plants early in June, if not, indeed, earlier than that, and has them all shifted during that month, or by the first week in July at the very latest. In the north, the work is delayed somewhat later. An excellent cultivator, Mr. George Lightbody, of Falkirk—from whom I have already quoted—used to recommend growers in the north to begin the work of re-potting at the end of July, so as to get it done by the first week in August, about which time the plants begin their autumn growth. The Auricula may be said to make two stages of growth in the year—one in early spring, before the time of blooming, when Nature is putting forth its energies to assist the development of flowers; and again in the autumn, when the plants in reality form the flowering crowns of the following spring. After the Auricula has done blooming it ripens and matures its spring growth, and it is then that it should be re-potted. In re-potting, use pots suitable to the habit and growth of the plants; a 6-inch pot (32-size) is large enough for the strongest and most robust; and plants of smaller growth should have a smaller size. One of our best amateur Auricula cultivators usually flowers his plants in 48-sized pots; and the strongest in 32's. Have the pots scrupulously clean, if they have been previously used for plants. Put in half-an-inch or so of broken crocks at the bottom, and over this some small pieces of charcoal, then some lumps of fibrous turf, by way of a drainage foundation. The plants should be carefully turned out of the old pots, the soil crumbled away with the fingers till the roots are nearly bare of soil, and then by means of a sharp knife a good portion of the tap roots—*i.e.*, the main stem of the root, out of which comes the fibrous roots, is cut away; for it is rather injurious than otherwise, as it will sometimes rot, and the rot will spread upwards to the plant and destroy it. A tap root, half or three-quarters of an inch in length, will be found quite long enough, if pretty well furnished with fibrous roots; and, even if destitute of them, the stem soon puts them forth. If there are any offsets, or side shoots, thrown out from the main stem, just beneath the leaves, that have already made roots, remove them by breaking them away, and put them on one side for potting, taking care to place the name with them. It is by such offsets that any one variety is propagated. In potting, place the plants somewhat deeply in the pots, especially those varieties that have a tendency to thrust themselves up out of the soil, a knowledge that can only be gained by a cultivator. Certain varieties are very apt to do this. In potting, also, arrange the fibres in a somewhat horizontal direction, so that they may soon find their way to the sides of the pots, if they do not already reach them. Place a few lines of fibrous turf along the roots for them to cling to, and try to keep the soil open about them. Pot moderately firm, for the Auricula does best in a tolerably close soil. On no account over-pot. What the cultivator should aim at is to get the roots to the sides of the pots as quickly as possible, and then the plants speedily establish themselves. There is a tendency on the part of the Auricula to throw its roots to the sides of the pots; and the plants never succeed so well as when this is the case. When re-potted, the plants should be placed in a wooden frame, standing under a north wall, with a brick-rubbish bottom, covered with ashes of a sufficient depth to bring the plants up near to the glass. Give each a fair supply of water, and continue to water moderately as required. The Auricula should not be swamped with water at this season. Undue moisture at the roots is always an unhealthy condition; and that is why good drainage is insisted upon. An occasional sprinkling over head in dry warm weather is beneficial, but the varieties having powdered foliage should be exempt from this, as it is apt to wash the meal from the leaves, and spoil their powdered appearance. During the summer months, no quarter must be given to snails and slugs. They require to be well looked after, or they get troublesome, and will sometimes do irremediable injury to valuable plants. I have known rats to eat off the heads of plants, and carry them away to their holes.

Propagation by Offsets.

I have already stated that the Auricula is propagated by means of offsets. These can be taken from the plants at any time when they are moving, as the florists say, or making growth. Very probably Mr. Lightbody, in his remarks already quoted on this branch of the subject, somewhat erred on the side of over-caution; for it is quite certain some varieties will produce several offsets, and do not appear to be weakened by the process. Other varieties produce offsets very sparingly indeed; and it is sometimes very difficult to get a stock of them in consequence. It is not at all necessary that offshoots be rooted before they are removed from the parent plant. So long as the set has a heel, it will soon throw out shoots. The Rev. Mr. Horner adopts the simple plan of pulling the offsets from plants when they are large enough, and pricking them in round the sides of the pots in which the parent plant is growing. It is no uncommon thing, therefore, to see a fine plant fringed with offsets. If it is at any time necessary to remove very small ones, they are put singly into small pots, and a bell-glass placed over them. I can bear testimony to the truth of Mr. Horner's remark, that offsets need not be rooted. I have proved it in my own experience; and last autumn I had occasion to remove some offsets from some plants of Primula intermedia and P. nivalis, and they were placed singly in thumb pots, and stood in a cold frame during the winter; and by spring all had rooted, and are now fine plants. I only know of one Auricula that is an exception to the general rule, namely, Ashworth's Regular, a fine white-edged variety, that roots very badly, and the offsets of which ought to be rooted before they are removed from the parent plant. During the summer and autumn, while the plants are making and maturing their second growth, they are very apt to be infected with greenfly, which settles on and about the centre leaves or crowns. The plants can be fumigated with tobacco smoke; or the insects brushed away by means of a camel's-hair brush. No Auricula cultivator would think of visiting his Auricula frames without a brush of this kind in his hand; with it he whisks this insect pest away into space, and they appear to get tired of being frequently disturbed. They do much harm to the Auriculas if allowed to remain unmolested. As the autumn advances, and damp weather sets in, the leaves of the plants should be kept as dry as possible, though air should be freely given night and day. The lights of the frames in which the plants are growing should be so tilted that, while plenty of air is admitted, falling rain is rigidly excluded. All decayed leaves must be removed as soon as they turn yellow. Some plants are apt to throw up their flowering stems in the autumn, but they should be removed, cutting them away as close as possible to the heart of the plants. The work of autumn should be that of swelling off the strong crowns to flower in the spring. During October, November, and December the plants are stationary and at rest. Keep the soil about them dry, and water only such plants as show flaccidity in the leaves. In times of sharp frost, protect the frames so as to prevent the plants from being frozen; not that it is sure to work harm, but it sometimes does so, and it is well to be on the safe side. On the other hand, when the air is dry and genial, give air at all times, for Auriculas are impatient of close confinement. Let the surface soil be occasionally stirred to prevent the possibility of a close, damp, green surface.

Top-Dressings.

At the beginning of the month of February comes another period of activity on the part of the Auricula; and then it is that the cultivators proceed to "top dress" their plants. The reason for this is, that the Auricula is, to a large extent a surface rooter, and throws out rootlets from that part of the stem nearest the leaves, and on a level with, or slightly beneath, and sometimes along, the soil. The plant, in fact, derives a great part of its support from the soil near the surface, and the practice of top-dressing is followed for the purpose of giving an additional supply of rich food. Besides stimulating the growth of the plant, it also adds beauty and finish to the flowers. Some of the old florists, as before stated, were great advocates of decayed sheep-dung as an ingredient in the soil for top-dressing, and they used to gather it together early in the summer, and lay it by to decompose. Now, the practice is to use fibrous loam, with which are plentifully mingled leaf mould and such manure as I have before recommended. The top-dressing is generally done when mild weather sets in about February, and the operator removes, in the first place, about an inch in depth of the old soil, taking care not to break any of the roots in doing so, and then fills up with the top-dressing, and gives a moderate supply of water, continuing the same during the absence of frost. Early offshoots should be rubbed away, that all the growing strength of the plants may be infused into the production of splendid flowers. By the month of March the cultivator will begin to see the reward of his labours, for the plants will be making growth and will require increased attention. By the end of March many of the trusses will be well above the foliage of the plants, and will be expanding their pips. Those who grow for exhibition, and therefore wish to have trusses with finely-developed pips, thin out the number, so as to obviate crowded trusses of bloom. The minimum number allowed in a "pan of Auriculas," as a collection of three or more plants is termed, is five expanded pips; but in the classes for single plants shown for premier honours, three pips only are admissible. If a truss consists of seven or eight, or even more pips, of fine quality, the exhibitor will allow it to remain, because it gives the plant a more imposing appearance and adds to its value. The pips not required are removed by means of a pair of sharp-pointed scissors. The plants must have plenty of air in fine weather to prevent the flower-stems being drawn. At this stage, it is usual to water the plants with soft or rain-water—in fact, this is always a point of considerable importance with the cultivators of the Auricula in the north. Sometimes sharp frosts occur in March, and the Auricula should be protected from any ill effects by placing a mat or piece of carpet over the frame at night when frost threatens. The delicate pips soon sustain irremediable injury if the frost reaches them. Some varieties, when touched by the frost, will have the paste cracked, which quite unfits the flower for show purposes, while some unexpanded pips will fail to flatten or expand. Those who do not exhibit will very likely desire that their plants should carry as many flowers as possible. Some strong well-established plants will carry enormous trusses; but, even then, a little judicious thinning is necessary, as it is far better to have a certain number of well-expanded pips than a larger quantity of cupped pips that are too crowded on the truss to expand well. It is when a pip is fully expanded and flattened that one is able to appreciate the beauty of the Auricula, and it is then like the blossom of a splendid Orchid; it needs looking closely into, if one would read all its charms and fully comprehend them.

Shading.

As soon as the pips of his Auricula begin to show colour, the exhibitor commences shading from the sun. This is done to prevent the dark body running out into the paste towards the scape of the flower, or into the edging beyond its circumference. A thin white cloth, or piece of tiffany, tacked on the top of the sash, makes a good shading; but it should be removed directly the sun leaves the frame. These are important aids in the production of fine pips; there should be liberal supplies of water when needed, and plenty of air on all favourable opportunities, the plants being turned frequently, so as to prevent the stems being drawn in any one direction; occasional stirring of the surface soil; and close attention to general cleanliness. In this way, a satisfactory head of bloom can scarcely fail to be the result. A large cultivator, like the Rev. F. D. Horner, flowers his Auriculas in a cool north house, arranged on shelves as one would other plants. Plenty of air is admitted from under the stages, and at the top of the house; and the stages are kept moist and cool. Such a house brings out the flowers with a great beauty of development; and they remain in bloom a long time. But, then, Mr. Horner has some 400 or 500 plants in flower at the same time, and a grand appearance they present. After the blooming season, the plants will still be making growth; and, during the summer, till such times as they are re-potted, they should be kept partially shaded; at least, protected from the full glare of the sun. Watering must be attended to, and plenty of air given, all decaying foliage removed, and the plants kept clear of green-fly. If seed be required from any good varieties, let them carry two or three pods, not more. Should seed not be wanted, pinch off the flower-stems an inch or two below the truss. If the cultivator be desirous of raising good flowers from seed, he should fertilise one flower with the pollen of another, selecting two flowers, each possessing some one or more good qualities, which it is his desire to combine in a grand new variety.

Alpine, Border and Seedling Auriculas.

The Alpine Auricula is, on the whole, a hardier plant than the edged section; but, to have fine flowers, it should also be cultivated in pots. The details of culture given in the case of the show Auricula will apply to the Alpine varieties, only that exhibitors of these last, in order to have their shaded flowers in the highest possible state of perfection, grow their Alpines in poor soil. The great property in Alpine Auriculas, from the exhibitor's point of view, is to have the shaded margin as clear and distinct as possible, with an almost clear line between the dark ground colour and the paler marginal colour. Size of pip is of small importance if the shading be not clear and distinct, and to get the latter the Alpine varieties are grown in much poorer soil than the stage varieties. But, if anyone wants fine decorative flowers, large, bold, and showy trusses, let him grow his flowers well and he will be abundantly rewarded. The Alpine Auricula is a charming border plant, and it is suitable for the rock garden. It does well in the open ground if it has a moist bottom and some shade. As it is not difficult to obtain a good strain of Alpine Auriculas from seed, these only should be grown as border flowers, and the more beautiful they are the more effective are they in the border. Plant in good soil, in a compost such as that recommended for show Auriculas, and top dress once or twice during the summer. Divide the clumps once in three or four years, and at every time of re-planting give them some good rich fresh soil to grow in. Seedling Auriculas can be raised with but little trouble. The seed can be sown at any time after it is ripe—say, in August, in October, and November, and in February and March, the last being the best time for sowing the main crop. The seed should be sown in pots that are well drained; the 32-size is the best. Use some of the old soil shaken out of the roots at the time of re-potting; that will do well for seedlings, sifting some of it a little fine to go on the top of the pots. Then sprinkle the seed on it, press it firmly down, and gently sprinkle with water; and finally put a piece of glass over the pot, and place it in a cold frame or a north house. Like all the Primulaceæ, the seed of Auriculas germinate irregularly, and a pot or pan of seed should be kept at least a twelvemonth before it is dispensed with. Some of the seeds will germinate quickly, others at long intervals. When the seed is sown in February and March, the growth is more regular, and it also comes away quicker. If the seed is sown thinly, the plants can remain in the seed-pots till large enough to pot off singly into small pots. If they come thickly, it is best to prick them off into shallow boxes, and then pot off when large enough. Seedling auriculas should be grown on rapidly, and encouraged to make all the growth possible during the summer. It is well to give them two or three shifts, so as to get them well established in pots by the autumn. If any seedling flowers are promising in character, grow and bloom them again another season, in order to test them. If a green edge, select some good standard variety to compare it with, and then the exact advance, or otherwise, can be ascertained. Aim at high-class quality, and keep nothing that is inferior.

Select Varieties.

It now remains for me to give a list of the best varieties in each section; but some of those named can be obtained only with great difficulty. Nevertheless, they are the very best in their respective sections.

GREEN-EDGED.

Colonel Taylor
Traill's Prince of Greens
Traill's Anna
Lady Ann Wilbraham
Traill's George Jeans
Lady Richardson (Gairn)
Prince of Wales
Page's Champion
Booth's Freedom
Lovely Ann
Lord Palmerston (Campbell)
Imperator (Litton)
Beeston's Apollo
Highland Laddie

GREY-EDGED.

George Lightbody
George Levick (Walker)
Alderman C. Brown (Headley)
Fletcher's Ne Plus Ultra
Alexander Meiklejohn
Richard Headley
Lancashire Hero
Lightbody's Alma
Sykes' Complete
Peverill of the Peak (Walker)
General Bolivar
Conqueror of Europe
Chapman's Maria
Robert Traill
Fletcher's Mary Ann
Maclean's Unique.

WHITE-EDGED.

Heap's Smiling Beauty
Taylor's Glory
Taylor's Incomparable
Hepworth's True Briton
Smith's Lady Sale
Cheetham's Countess of Wilton
Miss Ann Smith
Smith's Ne Plus Ultra
Mrs. Simonite
Taylor's Favourite
Lee's Earl Grosvenor
Summerscale's Catharina
Ashton's Bonny Lass
Bright Venus
Lightbody's Sophia Dumaresque
Ashworth's Regular
Lightbody's Miss Lightbody

SELFS.

Pizarro
Meteor Flag
Lord of Lorne
Duke of Argyle
Walker's Nimrod
Metropolitan (Spalding)
Formosa
Petronella
William Lightbody
Ben Simonite
Pohlman's Garibaldi
Topsy
Charles Jas. Perry
Blackbird
Lord Clyde
Stadtholder
Othello
Smith's Garland
Mrs. Sturrock

ALPINES.

Bertha
Brilliant
Conspicua
Diamond
John Leech
King of Crimsons
Mercury
Percival
Spangle
Wizard
Black Prince
Colonel Scott
Cygnet
Etna
Jessie
Landseer
Novelty
Pluto
Sydney
Wonderful

Anyone who is fortunate enough to obtain a plant of each of the above will have laid the foundation of one of the finest collections of Auriculas in the country. They are all in cultivation; but it is probable there may be only two or three plants of some of them in existence at the present time.

Richard Dean.

CORRESPONDENCE.

COLOUR OF FRUIT NO TEST OF QUALITY.

TO THE EDITOR OF "THE GARDEN."

Sir,—It would be quite out of my way, and altogether foreign to my inclination, as well as profitless to your readers, to meet mere assertion with flat contradiction, otherwise the statements made both by Mr. Simpson and Mr. Sheppard (see p. 288) might call for such rough treatment; when, for instance, it is stated that the colour in no case reached perfection till the fruit was ripe; that Muscats that refuse to ripen golden are half-shanked; that the worst part of a fruit is always that next the wall; that Red Hamburghs are invariably associated with shanking; that colour and flavour are never associated; that first-class flavour is never found in imperfectly-coloured fruit; and that, without colour, the fruit must naturally be deficient in flavour. Indeed, one might as well assert that paint is timber as make such assertions as these. Both your correspondents advert to Peaches grown under trellises as being inferior in flavour to those grown above them; obviously, in these instances, they confound imperfect maturity with want of colour, as Mr. Simpson does when he asks—"Are half-coloured Strawberries the best, or green Gooseberries the sweetest?" Well, supposing Mr. Simpson tries a pale British Queen against a glowing Black Prince, or Bicton Pine against a Sir Harry Strawberry, or a Pitmaston Greengage, Green Gascoigne, or early green Hairy Gooseberry against a Red Champagne or Warrington, or any other of the highest-coloured best Gooseberries he may choose, would he still contend that the joint productions of the sun's heat are colour and flavour, and that the two are never disassociated? Then, as to Grapes, I will back Chasselas Musqué, Duchess of Buccleugh, or the White Frontignan against the highest-coloured Grapes for flavour, whether black or golden. Further, where will you find a Nectarine equal in lusciousness to a Rivers's White, well finished; or a Peach equal to a pale Noblesse, Sulhampstead, Lord Palmerston, and others? So convinced is Mr. Sheppard of the certainty of colour being a true index to flavour, that he tells us he has always set his face against cutting fruit at shows and pretending to judge by flavour, as he holds it to be quite impossible to decide fairly in that way; whereas, if the fruit has size and colour, and has come to maturity, flavour is sure to be present. But how about maturity? Neither colour nor size will determine that; and, in the case of Grapes, the sense of smell is excluded. One can but marvel that a cultivator of Mr. Sheppard's skill should be content to rest his adjudications on one of the most fallacious of tests. But, then, it must be borne in mind that Mr. Sheppard also believes that colour indicates saccharine matter; and no doubt that is the key to his confidence in basing his awards on the mere will-o'-the-wisp colour. Lest I should do him any injustice on this point, I must quote his own words:—"The two—that is, colour and flavour—must, perforce, go together, as the same influence that puts on the colour adds the flavour at the same time, by converting the crude juices of the fruit into saccharine matter?" Accept this doctrine, and the whole matter is plain and clear; but how is this borne out in the case of Sloes, which, though high-coloured, are the most acid of fruits. Truly, as Mr. Simpson says, there are "stranger things in heaven and earth than are dreamt of in our philosophy," and amongst these must henceforth be reckoned the saccharine theory of colour, not only held, but actually acted upon, in adjudicating on the merits of competing collections of fruit. The object of this criticism is simply, if possible, to check assertion and invite facts; and a calm consideration of this theoretically interesting and practically important question how far colour is a test of quality in fruits, and of the causes that determine its production in various amounts in different seasons, and under varied conditions of culture, must be productive of good results. It should be assumed that the fruits are equally well ripened under identical conditions of light and heat. It is unfair, as well as useless, to put ripe against green, perfect against imperfect, fruit. That colour is not inseparably linked to flavour is proved by Melons alone, as not a few of these with least colour have the highest quality. I repeat, too, that I have eaten green Muscats, especially of the Cannon Hall variety, of enormous size of the most exquisite flavour, so filled with vinous richness as to command the special notice and approval of such a good judge as the late Mr. Donald Beaton and others, and that I have seen Red Hamburghs finished well without a shanked berry, and of such unusual fullness, as regards saccharine matter, as to attract the notice of, among others, the late Mr. Thomas Osborn, who pronounced them the finest-flavoured Hamburghs he had ever tasted, and took them at first for a new Grape of special excellence. Let me not, however, be misunderstood. By all means let each berry in Grapes and other fruits, be finished with the colour natural to it. I do not by any means advocate that our Black Hamburghs should be red, or the Muscat of Alexandria green; but, no doubt, colour has been too much looked to by cultivators, and far too much importance attached to it by judges at our shows, great and small. It seems, therefore, important that its relation to flavour should be better understood, and, if possible, more clearly and definitely defined. The mere fact, which cannot be denied, that it often precedes maturity by weeks and months, shows, of necessity, that it cannot be a safe test of quality, and ought never to be accepted as final in the judging of fruit. Mr. Sheppard himself admits that ripe Grapes improve by keeping, although the lustre of the rich black bloom becomes a little dim if they hang long after the ripening period. No doubt most of the bloom seems to wear off and disappear to a large extent; and yet Mr. Sheppard, by judging by colour, would actually award the prize to Grapes not so improved by keeping, inasmuch as those less ripe had the denser bloom. It is impossible to condemn colour-judging more effectually than in the words of your able correspondent, whose assertions prove too much, and are, therefore, wholly worthless. For, if the two qualities, colour and quality, are inseparable in fruit, the intensity of the former to the measure of the latter, the Sloe and the Damson are the best Plums, and Alicante is the sweetest and most luscious of all Grapes.

D. T. Fish.

THE CENTENNIAL BUILDINGS IN PHILADELPHIA.

I recently visited Fairmount Park to see what progress was being made with the buildings, and I found them farther advanced than I expected. The large separate building intended for the agricultural department is the most forward, and will be a splendid structure; the art building, which is also intended to be permanent, is a beautiful stone erection, which will prove an ornament to the park; the main building is not so far advanced as those just alluded to, but it is progressing satisfactorily, and promises to be well adapted to the purpose. The horticultural department, as a matter of course, attracted my attention most; it is in a very forward state, and promises to be a success. The building will certainly be a very handsome one, and quite as suitable for plants as large lofty houses usually are; but I am afraid there will be no plants large enough for it, and small ones will be lost. This will be remedied in a few years by the growth of the permanent plants; but in the mean time quick-growing climbers should be used, and large hanging baskets. If handsome prizes had been offered for various classes of plants, this exhibition would have been as popular as that annually held at Cincinnati, where an exhibitor informed me that he obtained over a thousand dollars in prizes last year. He added, however, that this sum, large as it is, did not pay his expenses, although the show lasted only a month, and he was a resident of the place. At the centennial the expenses incurred by distant exhibitors from May to November must, of course, be much heavier, and yet there will be no recuperation in the shape of prizes. The building is to be ornamented with a central fountain, and it will afford a good opportunity of displaying sub-tropical plants to advantage. Bulbs and shrubs will be planted in the grounds round the building. The situation and soil are suitable for such purposes; but early planting is necessary in this climate; there being no spring we rush from winter into summer, and plants put in late not only require much attention, but seldom start satisfactorily. It is useless to plant evergreens here in autumn; I have seen large patches of native Arbor-vitæ killed from that cause—the dry winter winds wither them up.

J. Taplin.

Cotoneaster frigida.—I shall be happy to send seed of this shrub, to which you direct attention in your last number, to any of your readers who may wish to have it. It is easily and quickly raised, and grows from 10 to 16 feet high. It has a white stem, and bears scarlet berries.—Salmoniceps.

Large Trees.—At Rufford Abbey the following remarkably large trees measure as follows:—An Oak, at 5 feet up, 27 feet round; a Lime, at the same height, 20 feet round; a Walnut, at 2 feet up, 22 feet round; and a Larch, at 5 feet up, 10 feet round.—Geo. Barry, *Longleat.*

Fir Tree Fungus.—All our trees of Abies cephalonica here are badly attacked by a Fungus, and are loosing their leaves from its effects. I have not met with it on any other species of Abies, and hope that it may confine itself to cephalonica. What is its name?—Henry Munro, *Clevelands, Lyme Regis.* [The Fir twig sent is covered with the Fungus called Æcidium abietinum.]

Bloxholm Hall Melon.—In a pit of late Melons here the Bloxholm Scarlet-flesh has lately ripened some of its fruit, and I find it to be one of the best varieties I have ever grown of that section. It has likewise proved a free setter, and, judging by its strong growth, it seems to have a good constitution. As regards flavour, it is as rich as any scarlet-fleshed Melon I have ever tasted, and its flesh is brilliant in colour and of a good depth, the rind being very thin. Altogether it is a variety that, when well-grown, is sure to give satisfaction.—William Tillery, *Welbeck.*

Paddington Flower Mission.—During the month of September forty-two hampers or parcels of flowers were received, also some Peaches and Apples, which were distributed among the different hospitals and homes of the sick and infirm.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

October 6th.

This was nominally a Fungus show, but only one collection was exhibited. The rare Geaster Michaelianus was furnished by Mr. Beech, of Castle Ashby, and a fine example of the sulphur-coloured Polyporus, came from the Deepdene, Dorking. Mr. Bull showed a collection of Crotons and other fine foliaged plants, and Messrs. Veitch and Mr. B. S. Williams excellent collections of new and rare plants. Mr. Dancer, of Chiswick, and Mr. W. Paul contributed interesting collections of hardy fruits.

First-class Certificates were awarded to the following new and rare plants:

Apple St. Edmund's Pippin (Mr. R. Harvey).—A medium-sized Apple of excellent flavour, having a russety coat flushed and streaked with red or crimson on the sunny side. It resembles the Golden Russet in colour, and is a valuable variety, as it ripens in September and October, and possesses the rich juicy and aromatic flavour of the best winter Russets.

Apple Worcester Pearmain (Smith).—A very handsome crimson-scarlet fruit, very much handsomer indeed than Scarlet Incomparable which it somewhat resembles in shape, or Red Astrachan, which also resembles it in colour. It is crisp, and very juicy, the flavour being really excellent. As an ornamental dessert Apple it has no equal, and as an exhibition fruit or for market purposes it is a very desirable kind. It is said to have originated as a seedling in a cottager's garden near Worcester, and the tree is said to be both hardy and prolific.

Brahea filamentosa (Veitch).—A truly handsome and distinct fan-leaved Palm, something resembling Chamærops in general habit, the long narrow divisions of its rigid fan-shaped leaves being fringed with slender white curling filaments. Its fresh green, vigorous habit, and the singularity of its Yucca-like filaments will render this a first-class Palm for decorative or exhibition purposes.

Pompone Dahlia Dove (Turner).—This is nearly perfect in form, the florets being equal, regularly arranged, and smooth; the colour is creamy-white, flushed with lemon-yellow in the centre, the apex of each floret behind being tipped with lilac-purple. It is a free-blooming and very desirable variety, useful for contrasting with the deeper and brighter coloured kinds in this useful section of the genus.

Agave Victoria Reginæ (Croucher).—This plant is certainly the gem of the genus to which it belongs, and well merits the name which has been given it by Royal consent. At first sight, its habit suggests the filifera group; but the filaments here are rarely produced, the plant is more noble and massive in character, the fleshy-based dark glaucescent leaves becoming triquetrous towards the apex, where they are terminated by a strong black wavy spine, having a few small secondary spines on two of the three edges which the leaf has at its point. The margins of the leaves are entire, and edged with white, conspicuous white markings, or lines, showing the imprint of the previous leaves. It is supposed to be a Mexican species; and the whole stock has been secured by Mr. Peacock, who has just added a fine specimen of it to the Alexandra Palace collection.

Gynerium ageratum var. (Noble).—A dwarf-growing variety, having slender leaves, rather more rigid than in the type; and the erect greenish-yellow silvery-tipped plumes are about 5 feet in height.

Collections of Plants.—Messrs. Veitch & Sons furnished, as has just been stated, a group of rare Orchids, Palms, and foliage plants, among which we noted a plant of Renanthera coccinea bearing a large branched spike of reddish-crimson flowers. This plant was about 4 feet in height, and was growing on a cork block. Masdevallia amabilis, a small crimson-flowered variety, and Pescatorea lamellosa, were also represented by healthy and vigorous-blooming plants. The last named has greenish-yellow sepals and a clear creamy-yellow lip, having a series of erect dark purple (nearly black) plates at the base. A dwarf-growing Australasian plant, named Exacum zeylanicum, was also shown in this group, and has opposite fleshy-veined leaves and terminal clusters of deep blue flowers, an inch across, in the centre of which the yellow anthers are very conspicuous. Messrs. Veitch had also the cut-leaved Breadfruit (Artocarpus laciniatus) in the form of two varieties, Dracæna Fraseri (a robust bronzy plant with crimson margins), and other plants of interest. Mr. Bull staged a splendid group of new specimen Crotons, and other fine foliaged plants, which were quite as remarkable for superior cultivation as for their beauty and rarity. Among the Crotons were fine plants of C. spirale, a deep purplish-green form, with spirally twisted or corkscrew-like foliage; C. volutum, with leaves curved like a ram's horn, and richly veined with golden-yellow on a green ground; C. Weismanni, similar to the last in colour, but having long linear leaves sometimes 12 and 14 inches in length; C. majesticum, similar in habit to the last, but with narrower foliage marked with orange-red; C. imperiale, with singular oval blunt-pointed leaves, each having a spiral twist, and margined with orange-red and yellow. This plant is interesting from a botanical point of view, inasmuch as the blade of the thick fleshy leaves exceeds the mid-rib, the latter protruding from the leaf at about an inch from the point. Associated with these were several Cycads, large-leaved Anthuriums, and other ornamental plants, for which a silver medal was awarded. Mr. B. S. Williams exhibited a well grown and effective collection of new and rare Ferns, Palms, and Orchids, among which we noted two good varieties of the brown-striped Oncidium tigrinum, Adiantum gracillimum, the most elegant and fairy-like of all decorative Ferns, not even excepting the filmy kinds; A. Farleyense; and a fine plant of Cypripedium Harrissianum, one of Mr. Dominy's hybrids, remarkable for its vigorous habit and free blooming properties. In the same collection was a plant of Pancratium fragrans, the long-petalled white flowers of which are deliciously sweet-scented. Mr. Noble, of Bagshot, sent four pots of a dwarf variety of the Pampas Grass, the plumes of which stood above 4 feet in height. From Mr. Wills came plants of Celosia pyramidalis, remarkable for their brilliancy of colour. These varied from 3 to 5 feet in height, and among them we noted yellow, orange, orange-crimson, deep purplish-crimson, carmine and maroon tinted varieties. Mr. Matthew Read, gardener to J. Johnson, Esq., Mountains, Tonbridge, sent a clear yellow seedling Carnation named Read's Canary, the flowers of which are good in form and agreeably perfumed.

Collections of Fruit.—Mr. Dancer's collection of hardy fruits, already alluded to, consisted of Plums, Pears, and Apples, the latter from the true Paradise stock, and the Pears from the Quince. Among the finest of the Apples we remarked Warner's King, weighing 16 and 17 ozs. each; fine specimens of Golden Noble and Cox's Orange Pippin, fully 3½ inches in diameter; Ribston, nearly as large; Gloria Mundi, Stirling Castle, Cellini, Beauty of Wilts, Cox's Pomona, Northern Spy, Wellington, Northern Greening, Small's Admirable, Hollandbury, King of the Pippins, and New Hawthornden, all splendid fruit. Among Pears in this collection we noticed fine fruit of Beurré Clairgeau, Beurré Hardy, a handsome clear yellow variety mottled with russet; Easter Beurré, Conseiller de la Cour, Urbaniste, Doyenné du Comice, one of the finest of all Pears; Marie Louise d'Uccle, a large russet-coloured fruit, said to be excellent in flavour. The collection also contained Calabasse Grosse, large and well-coloured; Durandeau, Louise Bonne of Jersey, Madame Treyve, and Beurré Superfin. There were forty-five dishes of Pears and twenty-seven dishes of Apples in this collection, and fifteen varieties of Plums, among which we noted fine fruit of Coe's Golden Drop, one of the best of all Plums (if we except Coe's Late Red) for keeping suspended in the fruit-room after it has been gathered. With these were also Belle de Septembre, one of the very finest of all late Plums for culinary purposes. Mr. W. Paul, of Waltham Cross, furnished a large collection of fruit, including 165 dishes of Apples and 135 dishes of Pears, the specimens in most cases being above average merit. Among kitchen varieties of Apples, we noted Burr Knot, an old kind, which, being easily propagated, is often used for stocks for choice varieties; Waltham Abbey Seedling, a large fruit somewhat like Lord Suffield, but quite distinct; Cardwell, or Rymer, a truly excellent old variety; Northern Greening; Beauty of Kent; and Bedfordshire Foundling. Associated with these were also excellent dishes of Cox's Pomona, a handsomely-striped Apple; Calville Malingre, a deep purplish-coloured fruit; Tower of Glamis; and many others. Dessert fruit was represented by Golden Harvey; White Paradise, a handsomely-striped conical Apple, nearly perfect in form, with a curious long-pointed, widely-expanded, or open eye; Lemon Pippin; Yellow Ingestre; and Nonesuch, an oblate, red-striped variety, having a peculiarly sunken crown or eye.

Miscellaneous Subjects.—Mr. R. Harvey, Bury St. Edmunds, sent a seedling Apple named St. Edmund's Pearmain, a rich russet, tinged with red on the sunny side. A dish of Winter Windsor Pear came from Mr. Wills, market gardener, Chiswick. It is a seedling of handsome shape, and has a very agreeable perfume. Mr. Richard Smith, of Worcester, showed a handsome seedling Apple named Worcester Pearmain, brilliant scarlet in colour, finer, indeed, than the Red Astrachan, and resembling Scarlet Incomparable in shape, but superior to even that variety in colour. Its flesh is white, richly flavoured, and juicy. Two autumn-fruiting Raspberries came from the Society's Gardens at Chiswick. One of these, a large-fruited red kind, named Saison Rouge, is evidently a prolific bearer, and its flavour is very agreeable. Surpasse Merveille Blanc is a white or pale yellow variety, a little sweeter than the last. A seedling Apple came from Mr. J. Clarke, gardener to the Rev. A. D. Stacpole, Writtle Vicarage, Chelmsford. It is of large size, and will be useful for culinary purposes, although not better than existing kinds. A large long russet-coloured Pear came from the same exhibitor. It was named Berwick Place Seedling, but in reality seemed to be Grosse Calabasse. Mr. P. Grieve sent a seedling Pear; and a handsome seedling Melon, resembling Golden Queen, came from Mr. W. Heath, gardener to J. Blackwell, Esq., Newton Lodge, Middlewich, Cheshire. A larger, rounder fruit came from Mr. Owen Thomas, The Gardens, Drayton Manor, Tamworth. Messrs. Carter & Co., sent their new yellow Plum-shaped Tomato New Greengage, the fruit of which is of a bright golden-yellow, and its flavour delicious. Messrs. Hurst & Son, Leadenhall Street, contributed a large red variety of Tomato named Hanham's Excelsior, a large flat or oblate-ribbed fruit, very distinct in form, and bright scarlet in colour. A miscellaneous collection of Apples and Pears came from Mr. W. Paul, of Waltham Cross, who also exhibited a handsome dish of his new Waltham Seedling Apple. Mr. Brown, gardener to the Duc d'Aumale, Orleans House, Twickenham, sent seven dishes of fine Pears for a similar purpose. Mr. Robert Fenn staged a select collection of round and kidney-shaped Potatoes, all raised from seed by the exhibitor. Mr. Noble showed a variegated form of Thujopsis borealis named aurea variegata, a kind equally vigorous in habit as the common form, which was also shown for comparison. It is glaucous-green in colour, varied here and there by sprigs or entire branches of a clear creamy-yellow. Mr. Green, of the Botanical Nursery, Holmesdale Nursery, Reigate, again sent his new hybrid Streptocarpus Greenii, the result of a cross effected between S. Rexii and S. Saundersi. This plant has been in flower for several months, and young flower-spikes are still being thrown up continuously. Mr. J. Douglas, of Loxford Hall, Ilford, sent splendid flowering branches of the old Macartney Rose (R. bracteata). The flowers are single, from 3 to 4 inches in diameter, and pure white, with a dense cluster of yellow anthers in the centre. It forms a good companion to the single white Japanese Rose (Rosa rugosa alba).

Fungi.—The Fungus show in connection with this society is generally regarded with much interest, but this year it was greatly inferior to previous ones. Mr. James English, of Epping, was the only exhibitor who competed for the prizes offered, and his collections, although highly interesting, were scarcely up to the average of former years. We only noticed a single example of the common Mushroom, although its ally, the Horse Mushroom, was represented by splendid examples. Boletus edulis is one of the best of all edible Fungi, notwithstanding its lurid colour. The Truffle (Tuber cibarium), which is found in Beech woods in Herts and Sussex, was not represented, although we noted fine specimens of the bright orange-coloured Cantharellus cibarius, Hydnum repandum, Hygrophorus virginicus, Agaricus procerus, the Parasol Agaric, and one or two edible Lycoperdons or Puff-balls. The vegetable beefsteak, one of the Fungi found in Oak woods (Festulina hepatica) was well represented, as were also the Fairy-ring Agaric (Marasmius Oreades), and Agaricus rubescens, which is wholesome, although very nearly related to the poisonous Fly Agaric (A. muscari). Bovista edulis is one of the finest of all edible Fungi, but it unfortunately resembles a virulent poisonous species, also with a reticulated or netted stem. Among kinds, either high-coloured or peculiar in shape, we noticed the scarlet-capped Agaricus muscari, the pretty little Clavarias, and Stereum hirsutum (which closely resembles a piece of rusty chain armour). The rosy and purple-coloured Russulas were also well represented. A large and fine specimen of Polyporus sulphureus came from Mr. J. Burnett, gardener to Mrs. Hope, of The Deepdene, Dorking, where it was found growing on a Yew tree. Fine specimens of Geaster Michaelianus were also shown. Previous to its discovery in a Rhododendron bed at Castle Ashby, it was supposed to be found wild only in Italy. The Rev. Mr. Berkeley suggested that the mycelium, or spawn, of this rare kind might have possibly been brought from Italy in soil, or pots containing Camellias, or other plants. Mr. Sawyer, Maidenhead, also showed an interesting collection of Fungi from Berks, not for competition.

Cones.—A small but highly interesting collection of Cones was furnished by the Rev. Mr. Manning. A Cone, 16 inches long, from the Red-wood tree, in the Mariposa Grove, was exhibited. Some small Cones, and a branch covered with a golden-tinted Lichen, from the Grizzly Giant, came from the same exhibitor. The dimensions of this monarch of the Mariposa Grove are—height, 270 feet; circumference at the ground level, 82 feet, and, at 61 feet from the base, 68 feet. The Rev. Mr. Boscawen sent some Cone-bearing branches of Picea Webbiana, P. Nordmanniana, P. radiata, Abies Douglasii, A. cephalonica, and others were also staged in this group. Mr. Boscawen likewise contributed Cone-bearing branches of Pinus insignis. The Cones of the well-known Abies cephalonica have this year been much damaged, and, in some cases, entirely destroyed, by a small Fungus named Periderimum columnari.

Florists' Flower.—Mr. Charles Turner, of Slough, furnished an effective stand of small-flowered or Pompone Dahlias, among which we noted White Aster, creamy white; Baby Waite, delicate lilac; Emotion, deep maroon and rose; Vesuvius, crimson; Little Dear, white, tipped with purple; North Light, scarlet; Amelie Barbière, a delicate-tinted rosy variety, the bases of the florets of which are shaded with white; Rose Perfection, a delicate rose, flushed with salmon; and several others. These small-flowered Dahlias are so brilliant and so much neater than the large-flowered, or show varieties, that we should like to see them occupy a place in every herbaceous border. Mr. Turner had also some very fine large-flowered varieties, among which we noted Clown, a deep velvety maroon, the tip of each floret shading into white; Captain Webb, a brilliant yellow flower, with a bright orange centre; Samuel Plimsoll, rich purple; Baroness Burdett Coutts, a clear yellow, and others. Mr. G. Smith, Tollington Nursery, Hornsey Road, Islington, sent a very valuable dwarf free-blooming semi-double sport from Pelargonium Vesuvius, which has previously received a first-class certificate, and which will be very useful either for bedding purposes or cut flowers, the petals being very persistent. A large white-flowered salmon-centred variety, named Morning Star, also came from the same exhibitor.

Gymnothrix latifolius in Lancashire.—This is the most handsome Grass I am acquainted with. Its broad massive foliage reminds one of Zea Mays, every leaf arching over gracefully. Out of doors it grows to a height of about 5 feet; it is all that can be desired in habit, being a very rapid grower, and is continually throwing up suckers round and close to the old roots. This causes the plant to be clothed with foliage to the ground. It is perfectly hardy, having stood out here four winters, and last winter was certainly a trying one. Although deciduous in this part of the country, I have no doubt that in the south of England the stems would survive the winter, and maintain their Bamboo character throughout the year. I know of no plant that disappears so totally as this—not a vestige of anything like life is to be seen through the winter months. It is also very tardy in vegetating, showing scarcely any signs of life till June. It does not evince much vigour September, when it grows with great rapidity, and becomes plant which at once arrests attention. In the conservatory it is persistent, and will throw up haulms 10 to 12 feet high, having a very tropical appearance. Among shrubs it has a fine effect in autumn.—Thos. Williams.

Garden Hybrids.—It seems to me desirable that the names, parentage, &c., of garden varieties, hybrids, and sports should be recorded as far as is possible in a clear and systematic form, so as to prevent in the future the doubts which now exist among horticulturists, as to which plants are species and which garden varieties. To cite a few examples, Phlox Nelsonii, Delphinium formosum, Statice (profusa) Rattreyana, and Narcissus incomparabilis, are garden hybrids; Bouvardia Vreelandii is a root sport. The Lucombe Oak, one of the finest of all evergreen ornamental trees, is a chance seminal variety, as is also the beautiful Dipladenia insignis, one of the most effective of stove climbers for exhibition purposes; while several of the best English raised varieties of the Potato are, on very good authority, said to be graft-hybrids. I am now preparing a classified list of garden plants, wherever their origin is known, and shall feel very grateful to any of your readers who will kindly send me through your office, the names and parentage of any new fruits, flowers, or vegetables they may have had the good fortune to raise.—Prop.

Gaines's Dwarf Calceolaria v. the Disease.—In my experience of Calceolarias I have found Gaines's Dwarf the best. I have discarded two other sorts as useless. They all had the same treatment, *i.e.*, they were transplanted from the cutting-frame, at the end of March, into a compost of loam, leaf soil, and Thames sand, the rougher the material the better, as it enables one to shift them with less risk. They were planted out with other bedding plants, and we have not lost one by disease, while, under whatever treatment may be given them, some varieties are sure to fail. Calceolarias had always been a failure here until I obtained Gaines's Dwarf, and I was obliged to have other plants ready to fill up vacancies.—R. F. Fuller, *Fitzroy Park, Highgate.*

Festuca viridis for Edgings.—This pretty herbaceous Grass is recommended for edgings, and I can fully endorse all that is said in its favour for that purpose, as I have employed it in that way, and find it most valuable. It is very dwarf, not exceeding 4 inches in height, and is dark green in colour. Small pieces of it, put in in a line about 2 inches apart, early in the spring, will expand and form a compact line by the autumn, and if not required to be lifted may remain for several years. Early in the summer it throws up flower-stalks, and if they are at once cut off with a pair of shears there will be no more growth to need trimming until the next year. I believe it to be quite as ornamental as Box, and it neither entails as much labour to keep it neat, nor is it so liable to get out of order as this much used edging plant.—A. D.

New Kidney Potato.—Of Kidneys the best I have yet seen is Fenn's International, which was shown at Stamford by Mr. McKinlay; but is it fair to show Potatoes for prizes that have not as yet been distributed?—R. Gilbert, *Burghley.*

Productiveness of the Snowflake Potato.—From 1 lb. of this Potato I have had twenty-four plants, the total weight of the produce of which is 130 lbs; thirty of the tubers averaged about a pound each. The Snowflake is an excellent Potato, but, in my case, the greater portion of them has become diseased since they were taken up.—E. Miller, *Old Sneed Park, near Bristol.*

Lime-kiln Heating.—Having felt much interested in the late experiments at Garston, I should be much obliged if Mr. Bennett would clear up some doubts that appear to exist as to the quality of the lime produced by this system. What price can be obtained for the lime thus made, and is it, as a rule, sufficiently clean for building purposes, or is it only available as manure?—A. D.

The Common Broom.—This is capable of producing striking effects when skilfully used. For forming masses of green waving feathery growth on the margins of shrubberies, in woodland walks, and for clothing steep hill-sides, where other plants will not grow, it is invaluable. An instance of its usefulness for the latter purpose may be seen on the Chatham and Dover line, on the Sydenham side of the Lordship Lane Station.—E. Hobday, *Ramsey Abbey.*

A Winter-blooming Rhododendron.—R. Nobleanum is highly valued in some places on account of the ease with which it may be forced into bloom in winter. In this respect, it forms a good companion to the pretty little purple-flowered Azalea amœna. R. Nobleanum forces as readily as a Deutzia, and cannot fail to be a boon where cut flowers of a showy character are required.—B.

How to Keep Peaches and Nectarines from Flies and Wasps.—Hexagon netting is generally used for this purpose, but is objectionable in more ways than one, the principal drawback being that it keeps the sun from the trees, so that the wood does not ripen. I simply tease out thin layers of cotton wool and wrap it round the fruit in time. If this is done just before ripening, the safety of the crop is secured, whilst the colouring process is not in the least retarded or interfered with.—R. Gilbert.

Denyer's Victoria Plum.—The Plum commonly known by this name, to which "J. G." no doubt alludes in The Garden of the 11th ult. (p. 224) is not really Denyer's Victoria. I well remember the Plum exhibited by Mr. Denyer about the year 1838 or 1839, either in Regent Street or at one of the Chiswick shows, and it was a very large round purple fruit; whereas the one usually grown as Denyer's Victoria, is a long pale red one. I bought a plant when Mr. Denyer sent it out, which is, I believe, still living. No doubt some of your correspondents will be able to support me in this statement.—J. G. N.

The Cologne Exhibition.—Messrs. Carter & Co., of Holborn, inform us that they have been awarded a silver medal for the Grass seeds supplied by them for the formation of turf on the Cologne exhibition grounds.

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> " This is an art
> Which does mend nature : change it rather : but
> THE ART ITSELF IS NATURE."—*Shakespeare.*

ALPINE FORGET-ME-NOTS.

THE blue of the Forget-me-nots is more familiar to us than that of the Gentians, and not less precious. Our common water-side species is as beautiful as any; but it has near relatives among the fairest of all Alpine flowers. Myosotis alpestris, of the Scotch mountains (wrongly, as I think, considered a form of the Wood Forget-me-not), is, on its native mountains, a low cushion of the loveliest blue. In the Alps, dwarf forms of the Wood Forget-me-not (M. sylvatica) ascend high among the Androsaces and Primroses. The now well-known Myosotis dissitiflora is a true Alpine species. With the Forget-me-nots the Omphalodes may be grouped; indeed, they, so far as the appearances of the flowers go, pass as Forget-me-nots. These are shore and thicket-haunting, rather than true mountaineers; but in stature they associate well with Alpine flowers, and are extremely valuable for our gardens. Another Forget-me-not-like plant is the very diminutive Eritrichium nanum, a low silky cushion, with a multitude of azure cups set all over it. This is a native of the highest limits of vegetation in the Alps. The Forget-me-nots are of easy culture, except, perhaps, M. alpestris, which best enjoys moist gritty soil, and will not bear drought. It is so dwarf in habit that it should only be surrounded by half-buried pieces of sandstone, or the like, to prevent evaporation and preserve it from accident. The old and well-known Omphalodes verna is one of the favourite plants for the wild garden. It runs about with such freedom in vegetable soil, in shrubberies or copses, as to justify the name Creeping Forget-me-not. Its sister, the delicately hued Omphalodes Luciliæ is a tenderer and slower-growing plant, requiring snug, sunny, and thoroughly-drained spots in the rock-garden or raised stony border. Much moisture in winter should in its case be guarded against; its lovely flowers repay all the trouble taken with it. Lastly, we have the dwarf and somewhat difficult Eritrichium nanum, one of the loveliest of Alpines, which forms sheets of Forget-me-not-like flowers, "blue as the sky itself," produced singly, or in little tufts, carpeting the surface of dense dwarf foliage, clothed with silky silvery hairs. V.

TOWN GARDENS IN AUTUMN.

To my mind, a garden in autumn well-planted is only second, in interest and beauty, to a good garden in spring. Both have their especial attractions: one is the fresh beauty of vernal vegetation, coaxed into life by warm sunbeams and genial showers; while the other is a richer and fuller beauty—the beauty of fruitfulness and sun-dyed leaves. Our public gardens, as at present managed, are remarkable for a blaze of bedding plants during summer, toned down, here and there, with sub-tropical plants and succulents; but, in the autumn, we have little else than the green turf and the trees, and even the beauty of these is sadly marred, in almost all our public gardens, by the preponderance of Elms. The common Elm is beautiful enough when grown in fresh air; but, near towns, there is no other tree which puts on such a dismal appearance in early autumn. Just now, when Oaks are turning brown on hill-sides, and Chestnuts are shading off into yellow and russet; when Grapes are purpling on sunny walls in suburban districts all around us; when the Chilian Passion-flower drapes our warm walls with its golden egg-like fruits, and the Virginian and Japanese Creepers are ablaze with crimson and gold, we long to see our town gardens and squares made more interesting by the intelligent use of trees and shrubs which assume varied tints as their leaves decay in autumn. And we have a great wealth of material for this purpose, if we will only use it in the right way. The Sugar Maple (Acer saccharinum) is one of the most beautiful of all autumn trees; so is Pavia flava, the foliage of which, late in the year, is of the richest shades of orange and russet, while the leaves of the common Scotch Laburnum, when they die off in autumn, are the colour of burnished gold. With these might be associated that hardiest and most graceful of all trees, the silvery-barked Birch, of which we have now numerous distinct forms. There are few trees in autumn more effective when planted among other kinds than Birches, and this may be seen any afternoon in Kensington Gardens, where their slender trunks stand out as clear and as bright as shafts of burnished silver, and their graceful branches droop with spray-like elegance. With these we might associate the Liquidambars and the double-blossomed Cherries, the leaves of which die off bright yellow, and by wreathing the stems and branches of our ornamental trees with Virginian Creeper, Grape Vines, Wistaria, or green and variegated Ivies, additional foliage effects may very readily be obtained. Another source of beauty in autumn is found in our ornamental berry or fruit-bearing trees and shrubs, such as the Mountain Ash, large fruiting Hawthorns, the yellow and scarlet-fruited Siberian Crabs, Cotoneaster frigida, C. Simmondsii, Pyracantha japonica, Aucubas, and many others, not forgetting the common Arbutus, which is just now very beautiful in some town gardens, bearing its bright orange-red Strawberry-like fruits among glossy leaves and Lily-of-the-Valley-like flowers. How is it that the large fruiting forms of Cratægus are so little grown in town gardens? They are as hardy as the common Hawthorn, and their fruit and foliage are both larger and more distinct than those of that well-known variety. A good collection existed at Chiswick some years ago, and some kinds are now very ornamental in the grounds at Kew. In Kensington Gardens, too, the drooping branches of Cotoneaster frigida are laden with dark crimson fruit; and the glossy-leaved Japanese Pyracantha, planted as a bush in the shrubbery borders, is all aglow with its scarlet-coral-like berries; while the large yellowish-green seed vessels, or keys, of Virgilia lutea hang in such dense masses among the trifoliate leaves, as to render this a most useful ornamental tree wherever autumn effects are required. Some of the varieties of Berberis Aquifolium are very beautiful in autumn and throughout the winter; and the American or Ghent Azaleas are nearly as beautiful in the autumn, when their foliage is changing to crimson and gold, as in the spring, when covered with fragrant flowers. Pampas Grass and stately Yuccas, too, must not be overlooked, for both are useful and permanent. Those trees which remain fresh and green when others around them are changing into the "sered yellow leaf," are also useful, both for contrast, and for enabling us to retain the freshness of summer as long as possible. To this class belong the Lombardy Poplar, the Ash, the Plane (just now the greenest of all town trees), and the Fig. This last-named tree is one of the best small-growing large-leaved trees for town gardens, its foliage equalling that of the Paulownia or Catalpa, while it is far hardier and makes a more luxuriant growth than either as a standard or trained on walls. The Fig is quite at home in deep rich soils, and it makes a good fence if trained and tied down occasionally, while its leaves remain fresh and green until the frosts cut them off late in autumn. Even the dwarf-growing hardy Heaths and Menziesias, now so beautiful in the Edinburgh Botanic Garden, might add to the attractions of our town gardens at this season, and would grow well if planted on the margins of Rhododendron beds or borders. Summer-heat and drought are, however, fatal to these autumn-flowering plants, and a few stones about them are necessary to keep their roots cool and moist during hot weather. Gaultheria procumbens, a large patch of which now luxuriates in the old Botanic Gardens at Chelsea, might also bear them company, along with the scandent berry-bearing Pernettyas, while on protected patches of fresh green turf we might have tufts of hardy Cyclamens, autumnal Crocuses, and Colchicums, which would look more beautiful among the herbage, the latter also preventing their delicate flowers from becoming splashed by heavy rains. One of the hardiest, showiest, and best of all autumnal flowers, however, is the Chrysanthemum, and it is to this plant and its innumerable varieties that we must look for bright autumnal floral displays in town gardens. That Chrysanthemums can be grown in town is demonstrated in the Temple Gardens, where we have annually fine displays of these flowers, both under canvas and in the open air. B.

NOTES OF THE WEEK.

—— The most remarkable Pear we have met with for a long time is now to be seen in Messrs. Webber's window in the Central Avenue, Covent Garden. It is called Williams's Duchess, and when we say that some of the specimens remind one in size of Belle Angevine, and are in flavour like Marie Louise, most Pear growers will know that it is worthy of attention. The specimens we allude to were grown by Mr. John Wilmot, of Isleworth, and in many cases weigh considerably over 1 lb., one specimen that we had weighed being 1 lb. 13 ozs.

—— The rare and handsome Indian Lilium Wallichianum has just flowered in the garden of the Rev. A. Rawson, of Bromley Common. Its flowers, which are long-tubed, measure nearly 8 inches across, the petals being of a creamy-yellow colour, and curiously revolute. The leaves measure from 8 to 10 inches in length, and about half an inch in breadth. This species bears some resemblance to L. philippinense in its habit of growth and narrow foliage, but is quite distinct from all other Lilies.

—— The October number of the "Florist" contains a coloured plate of three beautiful Californian Lilies, viz., L. Humboldtii, L. pardilinum, and L. californicum. They are evidently nearly related to one another, having large revolute flowers, of a rich orange-yellow colour, variously blotched and spotted with crimson-brown markings. All of them have flowered with Mr. G. F. Wilson, and are well worth careful culture, either in the open air or in pots.

—— Professor E. Morren, of Brussels, has been making some experiments with insectivorous plants, the result being that he combats the view that they possess the power of absorbing and assimilating animal matter, as stated by many observers in this and other countries. He says that so far as Pinguicula longifolia and Drosera rotundifolia are concerned, at least, he believes that the glutinous excretions of their leaves simply hasten decomposition, which is moreover attended by the usual concomitant phenomena. In very early stages he found monads, bacteria, the mycelium of various Fungi, and other conditions of putrefaction.

—— Mr. John Scott, of Merriott, has sent us fruit of two very beautiful Crab Apples, which, if they had no other merit beyond that of being ornamental, would be worth attention; but they are also eatable, their flesh being sub-acid, brisk, and juicy. One is the sweet-scented American Crab (Pyrus coronaria), a charming little Apple, very perfect in shape, and having a clear yellow skin, beautifully mottled, and streaked with red. The other (P. baccata de Rouen) is much smaller, and less regular in shape; but equally bright in colour. It forms a dwarf bush, and is a prolific bearer, the fruit being sweet and juicy—much more so than the Siberian Crab.

—— That the better kinds of Orchids, skilfully managed, continue to fetch high prices was sufficiently proved the other day at Stevens', where a collection belonging to Mr. Russel, of Mayfield, near Falkirk, and consisting of 639 lots, realised £2,211 14s. One plant of Saccolabium guttatum alone, described in the catalogue as being "from 2 to 3 feet high and wide," and as having "twenty-two strong leaves, two strong young plants at bottom, with ten and eleven leaves respectively," and as having "produced ten spikes of bloom this year," fetched £65 2s.! Twenty, thirty, and forty pounds were freely given for other lots, few of which brought less than ten guineas.

—— Among new or rare Orchids now in bloom in Messrs Veitch's nursery we have just noticed Cypripedium Arthurianum, a hybrid obtained by crossing C. Fairrieanum with C. insigne; Cattleya exoniensis, C. Dominiana, and C. Manglesii, all hybrids raised by Mr. Dominy; Phalænopsis Lowii, and the pearly little P. amethystina, P. rosea, P. amabilis, a very noble plant of Cattleya elegans Turneri, with very rich crimson-purple stained flowers; Cœlia macrostachya, bearing a spike of rosy flowers which have a curious crystallised or frosted appearance. Some very distinct long spiked varieties of the white rosy spotted Odontoglossum Alexandræ bear thirteen and fourteen flowers each, and these look pure in colour contrasted with Masdevallia Veitchii, and other deeply-coloured kinds.

—— "We were witness," says the "Photographic News," "the other day of a very pretty application of light made by a gardener. Everybody knows that the ripening and colouring of fruit are due for the most part to light and heat, and that the roses upon an Apple are influenced by the manner in which the sun strikes it. On looking at some fine wall fruit in a Kentish garden, the proprietor called our attention to the manner in which he allowed his Peaches to be partially covered by a leaf or two, in places—namely, where he wished them to remain green—and thus heighten by contrast the purple bloom on other portions of the fruit. There were many examples of a leaf being very sharply photographed upon the fruit, and the grower, by exercising a little care during the ripening season, thus enhanced the beauty of his fruit, and also their value as, in the case of a Peach, it is not only its flavour, but its appearance, which governs the price at Covent Garden."

—— Mr. W. B. Hemsley has been appointed librarian to the Lindley Library, at the rooms of the Royal Horticultural Society, South Kensington, in the place of Professor Thiselton Dyer.

—— We observe specimens of Lilium longiflorum still in flower in Covent Garden. It is, of course, important to know that it is possible to secure this handsome and useful plant so long in perfection.

—— The commonest kinds and qualities of Apples are now selling in the London markets at a shilling a bushel wholesale. These are principally bought by persons in the confectionery and preserving trade.

—— In no past year have English Grapes been so cheap in the London markets as during the present season, the produce of the Hamburgh and the Jersey gardens having tended to lower the price of the home-grown fruit. English Grapes have been sold as low as 10d. per lb. wholesale this year.

—— English Truffles are now plentiful in Covent Garden, mostly coming from Hampshire. Although these have not the black colour of the French kinds, cooks have the knack of making them so. Quantities are constantly sent from London to Paris, where they are coloured and sold as the French variety.

—— A recent number of the Belgian "Revue de l'Horticulture" has a plate of the Magnolia Lenné, the origin of which is not known, but which was disposed of by an Italian amateur to an Erfurt nurseryman, by whom it was named after the director of the Royal Gardens of Prussia. This is not a very satisfactory history of a shrub likely henceforward to be a noble ornament of our gardens.

—— We have received cut flowers of a pretty sweet-scented Verbena from Mr. Rumsey, of Waltham Cross. Its flowers are as large as a shilling, and of a bright rosy-lilac colour, with a white eye. This is the best sweet-scented bedding Verbena we have seen, and, as its habit and colour are exceptionally good, its odour proves an additional attraction.

—— The report of the curators of the Botanical Exchange Club (Dr. J. T. Boswell Syme and Mr. J. F. Duthie) for the last two years has just been published. It gives the new localities for scarce plants discovered during that time, and describes in great detail the observations which have been made on new forms or varieties of British plants.

—— The first part has just been published of the long-announced "Medicinal Plants," by Messrs. Bentley and Trimen. Each part is to contain eight coloured plates of plants included in the Pharmacopœia of Britain, India, or the United States, together with letter-press, comprising a full description of the plant, its nomenclature, geographical distribution, &c., and an account of its properties and uses.

—— We have often pointed out the difficulties which stand in the way of the poor receiving a proper supply of fruit. We are glad to be able to state that these difficulties are being, in a measure, removed by what are called "cutting shops." These are houses that sell fruit at a cheap rate by the pound, and make a conspicuous display of fruits in main thoroughfares, using plenty of gas in the evening for the purpose. In these such Apples as the Wellington are now selling at 1d. per lb.

—— In a recent number of the "Transactions of the Academy of Science of St. Louis," Mr. Charles Riley describes the curious habits of two insects which occur alive in the pitchers of Sarracenia variolaris. The first is a small moth (Xanthoptera semicrocea), which lays its eggs within the pitcher. The young caterpillars there weave a gossamer-like web and feed on the cellular tissue of the leaf. The putrid remains of insects previously captured, which have perished, are covered over by the excrements of these caterpillars. The second is a dipterous insect (Sarcophaga sarraceniæ). The mature fly is stated to drop a number of the larvæ into the pitcher, where they feed on the decaying remains of other insects, and finally burrow through the bottom of the pitcher into the ground, where they undergo their transformation.

Rose-coloured Pampas Grass.—I have forwarded to you a spike of Pampas Grass of a very distinct colour and gracefully-drooping habit. The plant from which it was cut is one of a batch of seedlings raised a few years ago, and it bloomed for the first time last year. It is now a large vigorous plant, throwing up a number of fine strong spikes. It is growing on a sloping bank in the nursery amongst a score or two of others, and the contrast is very effective and beautiful.—George Berry, *Longleat.* [It is one of the handsomest of the rose-coloured forms.]

THE FRUIT GARDEN.

THE EXTENSION SYSTEM OF VINE CULTURE.

Mr. Scott (see p. 308) not only attributes his own success in Vine culture to unrestricted growth, but also that of Mr. Curror. Mr. Curror, however (see p. 289), does not, I think, attribute his success to the extension system. There is one question that I should like answered by the advocates of this system, viz., How is it that the leading shoots of Vines do not always produce the finest bunches? I have carefully inspected Vineries under every imaginable kind of treatment, and in all stages of growth; but I have never seen the leading shoots finish their fruit off better than the lateral shoots, that are usually stopped one or two joints beyond the bunch. The leading shoots frequently promise to produce the finest bunches; but they fail in the end, and loose that solidity of form which bunches on even weak side-shoots possess. Yet, on the leading shoot, there is at least five times as much foliage as there is on the side branches. Mr. Scott says, why stop a Vine shoot at one or two joints beyond the bunch? But he must know that if more extension were allowed, one shoot would overlap the other, a result the ill effects of which are well understood by all fruit growers. If it were not an all-important point to have large well developed leaves, why do Pine growers allow so much valuable space, as they do, to each plant, when they might crowd double the number into the same space? Therefore, why allow more foliage on a Vine than there is ample room for, or that can receive full benefit from sun and air? Such overcrowding is, I should think, rather a drawback than otherwise. Why do Vines on back walls of Vineries languish and refuse to ripen their wood, although they receive the same treatment as those above them? Simply because they are not sufficiently exposed to light. When Grapes are required to keep until February or March, they must not be grown under a thick mass of foliage, or, as your correspondent puts it, in the dark; for, if grown under such circumstances, they would not attain that perfect maturity which is the true test of quality, and if each variety, whether black, white, or golden, does not attain its full colour, I never found them to keep satisfactorily. James Groom.

Henham.

Large-fruited Walnut, actual size.

LARGE-FRUITED WALNUTS.

Mr. A. Garcia, of Covent Garden Market, has sent us six Walnuts, the united weights of which, in the green state, are $1\frac{3}{4}$ lbs. They were grown at Twickenham, by Mr. Vanderlynden, and, although fine, as will be seen by the accompanying illustration, they are not so large as they were last year, owing to the crop being greater than usual. The ordinary produce of the tree has generally been about 3 bushels, but this season there are 10. The shells of these, when polished, hinged, and neatly lined, form suitable receptacles for trinkets, and they are also sometimes converted into miniature pincushions.

Bees and Wasps v. Fruit.—Bees are said to have been even more troublesome than wasps this year; indeed, in some localities, they appear to have done a great amount of damage to Grapes, Peaches, and other fruits. At a recent meeting of the Royal Horticultural Society, the Rev. M. J. Berkeley remarked that he had observed wasps, after vainly attempting to force their way through paper-bags (in which clusters of Grapes had been enveloped to protect them from insect pests), bring water, and moisten the paper, which they then easily tear with their strong mandibles, and thus obtain access to the fruit. This is one of the most extraordinary instances of instinct of which we have any record. It must, however, be remembered that the wasp is a professional paper-maker, the outer coat of its nest being formed of masticated woody tissue or leaf-fibre, remarkable for its toughness and elasticity; and this may account for the cunning shown by the little marauder in detecting the weak points of the fabric employed as a protection from its depredations.—F. W. B.

An Avenue of Pears.—There is an avenue of Pears planted along one of the approaches to the large and well-managed kitchen garden at Eridge Castle, near Tunbrdge Wells. It is now composed of fine young standard trees, gracefully bending with fruit, and of really good kinds. This is a kind of avenue that might well be imitated in many a garden. In an age when various Conifers, whose value and hardiness in our climate are not proved, are often planted as avenues, nobody will doubt the wisdom of making, in the fruit or kitchen garden, an avenue of such a beautiful and useful tree as the Pear. It would, of course, be best composed of different kinds of Pears—say, two of each. It would also give an opportunity of planting the more valuable kinds of Pears. The reason why many a garden is badly supplied with good Pears is the very simple one that the really fine newer kinds are not planted sufficiently, or perhaps not at all.—V.

Early Tomatoes.—I do not know a more profitable crop (says Mr. Temple in the "Florist") than early Tomatoes. They require so little attention, and are so difficult to destroy by ordinary treatment. The wonder is that they are not more plentiful in the spring and early summer months than they are. The fruit is used in so many different ways, that if more attention were given to their culture very different results than those we now commonly see would be realised. The present is a good time to plant for spring crops. If the plants are raised from cuttings they do not grow so freely, but they produce fruit earlier than if grown from seed. I prefer growing them in pots, filled with fibrous loam and well rotted leaf mould. When they are in their permanent quarters, the roots may be allowed to grow through the bottoms of the pots, and the plants will thrive and bear fruit up to the following winter if necessary. As regards training, single stems, from which all the laterals are rubbed off as soon as they appear, offer the most simple way of treating them, and they should be allowed to run as far as they can find head-way. We have had fine fruit ripe in March, the pots having stood on bricks over the hot-water pipes in Vineries; and having been well fed with manure-water, the same plants have yielded abundantly throughout the season. In newly-planted Vineries, where Grapes from "supernumeraries" are not really essential, Tomatoes trained between the rafters as cordons, and kept within bounds so as not to injure the Vines, will give returns many times more valuable than those from the temporary Vines. In an early Vinery here, with Tomatoes planted between the young Vines, we have had excellent crops since April, and they are now bearing as abundantly as ever.

The Peach as a Bush and Standard Tree.—I noticed a few days since that Mr. Rivers, of Sawbridgeworth, had sent to London ripe Peaches of the Early Beatrice grown on a bush outdoors. I think it possible that in many parts of England the Peach may be grown and ripened on bushes. For some years I have had the Early York so grown, and it generally bears well. This year I have gathered more than six dozen well-coloured fruit of excellent flavour. I have also Crawford's Early very fine on a bush with large and good fruit. I shall try the Early Beatrice, the Prince of Wales, and one or two others. I have no wall, so rely solely on the bush system of growing fruits. My land is high up and bleak in winter, yet I generally have good crops; the only drawback being the number of bullfinches that eat out the bloom buds and do more damage to me than the frosts ever do. Perhaps others will try a few bushes of different sorts of Peaches out of doors and give their experience. Mine are planted amongst the shrubs and used as ornamental trees, as I use also my Pears and Plums, and they have a very pretty effect, both when in bloom and also when covered with bright high-coloured fruit; besides which I save the labour and expense of wall-training. —Harrison Weir, in "Journal of Horticulture." [There need be no doubt that the Peach may be grown away from walls in southern England with success; so may the Nectarine and Apricot. It has been told in The Garden how Mr. Grieve grows good Peaches on bush trees in Suffolk, and that in by no means so favourable a situation as many further south. The fact is, no sufficient attention is paid to plantations of hardy fruit trees. Thus, in parts of Sussex where the Fig does notoriously well without culture, we never see any attempt to grow this fruit in an improved manner, none of the newer kinds planted, and no plantations of dwarf trees made.]

The Salway Peach.—I find that this is one of the finest and latest of Peaches; although not equal to Walburton Admirable in flavour, it comes in after that variety, and deserves a place in every collection. We have a young tree of it, planted three years ago, that is now ripening a splendid crop of fruit, many of which average half-a-pound each, and will evidently keep until the end of this month.—James Groom, *Henham.* [A new Peach, named Belle de St. Geslin, is said to ripen a fortnight later than the Salway, thus extending the Peach season to November. It was found by M. Joutrou amongst the ruins of St. Geslin, at Richelieu, in the department of Indre-et-Loire.]

A New Race of Pine-apples.—M. E. Pynaert, writing in the "Bulletin d'Arboriculture," states that he has been informed by M. Duda, head gardener to Count Arnim, at Planitz, that remarkable results have been obtained from growing a variety of Pine-apple, called Ananassa nervosa. This, M. Pynaert says, was unknown to him, and is of rare occurrence in Belgium; yet he was surprised to meet with beautiful specimens of it in a perfectly ripened state at the Cologne Exhibition. The variety is said to combine, in a remarkable degree, all the qualities desirable in a plant destined for culture on an extended scale. The fruit is large, rounded, and, indeed, in the variety termed maxima, almost spherical. The pips are very large and flat, and the crown an extremely small one. The leaves are short and few in number; in fact, the fruit seems out of proportion with its foliage. M. Pynaert thinks that, when better known this variety will rapidly come into general cultivation.

New Method of Storing Fruit.—Fruit is kept in Russia by being packed in creosoted lime. The lime is slaked in water in which a little creosote has been dissolved, and is allowed to fall to powder. The latter is spread over the bottom of a deal box, to about 1 inch in thickness. A sheet of paper is laid above, and then the fruit. Over the fruit is another sheet of paper, then more lime, and so on until the box is full, when a little finely-powdered charcoal is packed in the corners, and the lid tightly closed. Fruit thus enclosed will, it is said, remain good for a year.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Knight's Monarch Pear (see p. 296).—A good many fruits of this variety generally drop prematurely here, owing, I think, to the habit which this sort has of producing its fruit in clusters of four or five, and sometimes more, together. The fruit being roundish and the stems short, as soon as one falls the others often fall too, having been supported by each other. In gathering, I have often proved this to be the case. It does remarkably well here, both on walls and on pyramids on the Pear stock; it is a free bearer, and very fine this season. —John Garland, *Killerton, Exeter.*

The Amsden Peach.—The Amsden Peach is said to be the earliest of all—a point I should like to decide if I could get a plant. Perhaps some of your readers may be able to give us some information about it; if so, I shall be much obliged. It is, I think, a variety raised in America.—P. B.

Greengage Tomato.—Fruit of this pretty yellow Tomato has again been sent to us by Messrs. Carter, to show how well it sustains its original character. Its flavour, compared with that of other varieties, is delicious, and altogether it well deserves the first-class certificate which was awarded it.

Shipping Peaches to England.—The first trial has proved a failure. Insufficient ice was provided and the fruit rapidly decayed. With plenty of ice the experiment would probably have been a success, as the Peaches were in good condition up to the time that the ice supply failed. This idea deserves further trial, as an English market for American Peaches and other perishable fruits would be an important relief to that country in seasons of great abundance.

Unseasonable Flowering in Apple Trees.—There is a large Apple tree in the garden of Mr. Churchman, Broadway, Hammersmith, now in full bloom, almost as much so as it was in spring.—J. Croucher.

CARPET BEDDING AT CLEVELAND HOUSE, CLAPHAM PARK.

After having visited all the best of our public parks and seen the carpet bedding contained in them, it has been rather a surprise to find by far the best examples of this now popular and, as far as colour is concerned, pleasing style of decoration, in a pretty suburban garden; but such is most assuredly the case, and all who are interested in carpet-like colour effects should take the first opportunity of seeing the charming display of dwarf foliage plants at Cleveland House, Thornton Road, Balham. The perfection to which the carpet style of gardening can be brought would appear to have been attained here, for the individuality of each plant used is lost in the harmonious blending of the rich colours that are presented to the eye; while all sense of flatness or monotony is effectually removed by the dense and stately masses of foliage afforded by sub-tropical plants. Two sides of the house face a fresh carpet-like lawn, and on one of these sides is a circular design of six oblong beds, radiating from a round one in the centre, and all seven beds are planted with dwarf foliage plants alone. Outside the oblong beds and alternating with them are six circular beds, devoted to noble-habited sub-tropical plants, the fresh colour of which serves to relieve the eye, and considerably enhances the brightness of the carpet beds by contrast, at one and the same time. The central circular bed is one of the most effective in the whole group, and is planted in the centre with a round mass of Pyrethrum Golden Feather encircling graceful plants of Dracæna indivisa. Then comes a narrow ring of Alternanthera paronychioides, surrounded by a broad belt of golden Mesembryanthemum, forming a pale yellow carpet, on which are six triangular panels of green Tagetes, edged with Echeveria secunda and six Jew's-harp-shaped panels of the carmine Alternanthera amœna, edged with small plants of sempervivum calcareum, the whole being neatly margined with lines of Alternanthera paronychioides and Stellaria graminea aurea. The six oblong beds, radiating from the last, are all prettily planted in pairs, one pair in particular being beautifully soft and harmonious in colour, and perfect in several other ways. The materials that have been used in these beds are as follows:—White—Leucophyta Brownii. Pale blue or glaucous—Echeveria secunda, Kleina repens, Sempervivum calcareum, Sedum glaucum. Yellow—Mesembryanthemum cordifolium variegatum, Pyrethrum Golden Feather, Stellaria graminea aurea. Orange-scarlet—Nertera depressa. Green—Tagetes signata pumila. Carmine—Alternanthera amœna. Orange-red—Alternanthera amabilis latifolia, A. paronychioides, A. p. major. The charming out-door use here made of Nertera depressa is an innovation worth recording; and the treatment adopted by Mr. Legg, in managing this pretty little coral-berried plant for carpet beds, will be found in The Garden of this year (see p. 168). The broad sweep of turf on one side of the house is very judiciously left undisturbed, with the exception of one oblong bed opposite the hall-door, which is very effectively planted with a trefoil design of crimson Alternanthera and Echeverias, on a carpet of the soft yellow-golden Mesembryanthemum, neatly and effectively margined with Sempervivum calcareum and Sedum glaucum. The six sub-tropical beds are planted as follows:—Melianthus major, edged with crimson Coleus; Wigandia caracasana, edged with Coleus; dark-leaved Cannas, edged with Chamæpeuce diacantha; Ferdinanda eminens, edged with the rugous-spined C. Cassabonæ; Ricinus sp., edged with the same, and a green-leaved Canna, edged with Salvia argentea. A long curved border of crimson Coleus and Golden Feather, panelled with scarlet and pink-flowered zonals, carmine Alternanthera, and edged with blue dwarf Lobelias and glaucous Echeverias, is also very rich and effective, especially as seen from the upper windows. Of course, much may be said both for and against carpet-bedding; but the masses of colour brought together by this style of leaf-gardening are so rich and permanent, even in wet seasons, that we should be sorry to see it abandoned, especially if it were always carried out as perfectly as it is at Cleveland House. As a rule, however, carpet beds would have a better appearance altogether if their shapes were less intricate and meaningless than they now are.

F. W. B.

THE INDOOR GARDEN.

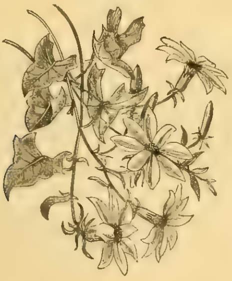
THE NEAPOLITAN VIOLET.

This Violet, which has an unusually delicate scent, is one of the most useful winter flowers which we have for bouquets, and the season is now approaching when winter quarters must be selected for it. It is best to prepare for it a hotbed of leaves and stable manure, and, as soon as the heat is far enough spent, to fill the frame to within 6 inches of the glass with short dung and mould, to the depth of 9 inches. The compost should consist of two-thirds loam and one-third leaf mould and sand, the whole being well mixed together before it is placed in the pit. When the heat is down to about 75° the plants should be lifted from their summer quarters in a north border and planted in the frame, about 9 inches apart each way, carefully picking off all decayed or blighted foliage, and stripping off all spurious runners that may have accumulated during the autumn. Every care should be taken to see that the soil is free from wire worm, and the loam should be quite fresh, as often in using old loam that has been employed for other purposes, such as for Melons or Pines, red spider is induced to attack the plants, and failure is the result. The best cure for plants thus attacked is watering and syringing with soot-water, and the best manure-water to use for this Violet is liquid guano, about once a fortnight. If the sun is very hot after planting, shade with mats; but do not cover the frame with glass till the plants have made a start. Neapolitan Violets require a great deal of shade, and the pit should be so covered with litter or mats as to keep the heat up between 45° and 50° through the winter months. If this treatment is thoroughly carried out, plenty of beautiful double Violets may be gathered every week all through the winter. The new dark Neapolitan kind is now beautifully in flower out of doors; but the old variety has not commenced flowering yet, and I am quite of opinion that, when the new variety gets better known, no other variety will be grown. H. G.

CAPE IVY.

(SENECIO MACROGLOSSUS.)

This is one of the greenest of all evergreen climbing plants adapted for window or room culture. It flowered for the first time, in the succulent-house at Kew, in January last. Its foliage, as will be seen by the accompanying illustration, closely resembles that of the common Ivy; it is deep glossy green in colour, and elegant in form. Its flowers measure from 1½ to 2 inches in diameter, and have eight ray florets, of a clear yellow colour. They are borne on drooping stems and are very graceful and effective. Like its congener, the German Ivy (S. mikanoides), it may be readily propagated by means of cuttings or seeds. As a climber, or as a plant for covering the back walls of corridors, greenhouses, or cool conservatories, it is deserving of attention. A small plant of it, in bloom, was exhibited during the present year, by Mr. Green, of the Botanical Nursery, Reigate, at one of the meetings of the Royal Horticultural Society. B.



Senecio macroglossus.

BEGONIA LEMOINEI FLORE PLENO.

This beautiful novelty, of which a wood-cut and description (under the provisional name of Begonia monstruosa plena) appeared in the fourth part of the "Revue Horticole" for last year, was sent to me by the raiser, M. Victor Lemoine, of Nancy, in France, towards the end of last year, to grow and report upon. I started it into growth in a pot on the front shelf of a cold house, and, when it had four or five leaves, planted it out about the middle of May, in the centre of a small bed, in a rather sunny position in my garden, in light rich friable soil, where it soon grew into a fine plant, and in about a month's time, or towards the middle of June, began to produce its lovely blossoms, which are borne usually in pairs on slender footstalks, of from 6 to 8 inches in height, but well raised above the foliage, which is very dwarf and compact in habit. Of the two blooms on each stalk the male only is double (as is, I believe, invariably the case with double Begonias), but it is a really double flower, the centre being well filled up with extra florets; the size is about that of a florin, and the colour is the brightest scarlet. The male flowers invariably open first, and remain in full beauty for several consecutive days; shortly before they drop off the stem the smaller and comparatively insignificant female flower opens, and remains expanded for some days after the falling of the double male flower. This variety sends up short-jointed stems of from 6 to 8 inches in height, and seems to strike almost as freely in silver sand and water as any other Begonia. It is to be distributed at the commencement of next year, under the name at the head of this notice, by M. Lemoine, who informs me that he has now obtained an equally fine double flower of a beautiful rosy-salmon shade of colour.

Belgrove, Queenstown. W. E. Gumbleton.

Phalænopsids and Flies.—Upon visiting the house where my Phalænopsids are growing I was much surprised, the other day, to see several leaves with clusters of six or seven bluebottle flies on their edges. After finding that however persistently they were driven off they always returned to the same positions on the same leaves, I had the plants taken down and examined, and found little white holes in the leaf. The microscope showed them to be cavities with indented and puckered edges, as though small pieces had been gouged out. Not having before known a fly supposed to feed on animal matter thus turn its attention to Orchid leaves, I have thought that some of your readers might be interested in the recital of the facts to which I have just alluded.—W. H. Michael, *Cholmely Park, Highgate.*

Streptocarpus biflorus.—This is one of the many good plants which are often overlooked, and one which is not nearly so much grown as it deserves to be. It is a stemless, cool stove perennial, with thick strap-shaped downy leaves, whose tendency to damp at the tip is one of the chief drawbacks to its culture. It produces an abundance of bright mauve-coloured flowers, two together on a stem, somewhat like a small Gloxinia, but with a much more slender tube. It continues flowering under favourable circumstances for a great part of the year, and by having a number of plants it can be had almost constantly in flower. It is easily propagated by division, and bears removal to a drawing-room, when in flower, well. Anyone who can grow Gloxinias will have no difficulty with this Streptocarpus.—Greenwood.

The best Stock for Epiphyllums.—I believe that Pereskia aculeata, which is so much recommended as a stock for these plants, is not nearly so good for that purpose as either Cereus speciosissimus or any strong-growing species of Opuntias. The grafts succeed very well on the Pereskia for a year or two and flower well in a young state when worked on this stock; but, if large and permanent specimens are required, then graft on either of the other stocks just named. As the Epiphyllum develops itself on the Pereskia stock the head or graft requires much more nourishment than the stock can supply; of this a sure sign is the appearance of aërial roots at the nodes. I recently saw a specimen of E. Russellianum on the Cereus stock fully 6 feet high and 4 feet in diameter; and in the gardens at Croxteth Park, near Liverpool, this stock is trained up the rafters of a plant stove and grafted at intervals with different varieties of Epiphyllums. The Opuntia is a very good stock for umbrella-headed standards, as it is strong enough to bear a good-sized head without artificial supports. There are some good specimens on this stock in the Agave and Cactus-house at Alexandra Park, together with a very interesting collection of grafted Mammillarias.—F. W. B.

A Useful Indoor Plant.—The common Lycopod, grown in shallow saucers is the handiest and most lasting of all materials for surfacing vases in the house. It may either be turned out or left in the saucers, according to circumstances. On mantel-pieces, &c., covered with it, I sometimes place bunches of the white hardy Menziesia, to represent Snowdrops, and with good effect, when Snowdrops were not to be got.—J. S.

TRESCO ABBEY GARDENS.

Of the large number of visitors who go yearly to Penzance, and other parts of Cornwall, but few venture as far as the Scilly Isles, though they are but a few hours' sail from Penzance, and a steamer starts daily during some of the summer months, and three days a week during autumn, to St. Mary's, the principal island. The group consists of about forty islands and islets, perhaps more, enclosed within a circumference of about thirty miles. Only six, however, of these islands are inhabited, namely St. Austin, St. Mary's, St. Brian, St. Agnes, St. Martin, and Tresco. As the latter is that which I am about to describe, I shall merely say of the others that they are all well worth a visit. On Tresco, Mr. O'Brien Smith, the proprietor of these islands resides, and his residence ought certainly to be seen by all who happen to have travelled as far west as Penzance. Communication between the islands is rendered easy by means of sailing boats, plenty of which are for hire at Hugh Town, St. Mary's, whence I set sail one afternoon this autumn, being one of a party bound for Tresco Abbey. Landing on the beach, the sand of which is very fine and quite white—silver sand, in fact, amongst which the most charming varieties of small shells are to be obtained—a beaten track, or road-way, brought us in a few minutes to the entrance lodge of Tresco Abbey, a very unpretending building outside, but curiously embellished on the side facing the gardens with the figure-heads, &c., of ships lost off the island, a large number of which are unfortunately wrecked at all times of the year in the gales of this dangerous locality. The soil of the island is wonderfully fertile, and this, combined with the mild climate, renders it possible to cultivate in great luxuriance, and without protection, plants that are never seen out of doors in any other part of the mainland. Leaving on our right the croquet lawn, along one boundary of which are ranged more remains of wrecks washed up on the island, we proceeded along a walk at each side of which was a wide bed or border, not bedded out in rows of Lobelias, Pelargoniums, &c., after the fashion that obtains in the parks and gardens about London, but filled with Camellias, Azaleas, Veronicas, Escallonias, Pelargoniums, Calceolarias—plants of the latter being 4 and 5 feet high—and many others. Another turn brought us into a walk on each side of which are trees of Fuchsias, Dracænas, Bamboos, Aloes, Yuccas, Aralias, and different other plants, which one is accustomed to see in greenhouses, but which here live out of doors all the year round. A perfect grove of Aloes in full bloom next come in view, the bloom-spikes of which range about 20 feet high, a wonderful sight to those who have not seen the like before. Then came a wilder portion of the gardens, as it strikes the visitor at first, no shrubs being here seen, and the banks of rocks being left in their pristine state, except as regards their natural foliage, which, save a few tufts of Heaths, has been removed, and its place usurped by Echeverias, Saxifrages, Mesembryanthemums, &c. The size to which the Echeverias and Saxifrages grow at Tresco is wonderful, for they bear a greater resemblance to huge flat Cabbages than to the comparative liliputian specimens we are accustomed to see. The place of the Heather and Gorse which once grew amongst these rocks has been taken by Pelargoniums of both the fancy and nosegay varieties, which grow quite as luxuriantly as the plants of Gorse to be met with on any moorland. The charming effect thus produced cannot well be described. All the hedges which sub-divide the gardens are formed of Geraniums or Escallonias, and growing wild everywhere are to be found different varieties of Mesembryanthemums, of which there are, I am informed, no less than seventy varieties here. In Tresco are the remains of an old Abbey, and of the fortifications erected during the war between Charles I. and the Parliament. The ruins of the abbey, covered with Ivy and other creeping plants, form a most picturesque object, particularly one arch, at the base of which are two gigantic Aloes. The old lighthouse of St. Agnes, in which the beacon-light was lit before the new light-house was built, is here converted into a flower-vase, and is an interesting and ornamental object. Tresco is a handsome modern dwelling, with large conservatory attached, but, as all the glass-houses were being repaired at the time, I cannot speak of the plants which they contain. The view from the upper walk of the gardens is lovely, all the other islands being visible, and, on the occasion of my visit, its beauty was further enhanced by a magnificent Atlantic sun-set. Most of the soil at Tresco is composed of peat and sand, and will grow almost anything. The air is very mild, the glass never falling below 33°, I was informed, during the coldest of our winter months. There is a curious old tombstone in the Abbey ruins, round the base of which are growing many rock plants. Ferns, &c., are growing wild on the islands in great variety. Amongst other varieties on St. Mary's, I collected a large number of roots of Asplenium Adiantum-nigrum and marinum. Other parts of the island of Tresco are, I am informed, well worth visiting, but, unfortunately, I was limited as to time, and was compelled to confine my inspection to the Abbey gardens, with which, from their novelty and the excellent order in which they are maintained, I could not help being much pleased. A. Hassard.

NEW RACES OF GLADIOLI.

When a certain race of hybrid plants is crossed and re-crossed with its own varieties, the production of striking novelties becomes every year more and more difficult, till at last only one among many thousands is worth keeping; and that is generally little better than plants already in cultivation. We have nearly arrived at this point with Gladioli. The only way, as far as I can see, by which we can raise new and striking varieties, is to introduce, so to speak, new blood! Why not try some of those old and nearly forgotten species which were figured in the "Botanical Magazine" some thirty or forty years ago? Why not try to obtain crosses between the varieties of Gandavensis and some robust species of recent introduction? It would not matter if kinds even with a somewhat weaker constitution than that of Gandavensis were used, for Nature likes to play her own part, and by crossing worn-out varieties with a fragile new species sometimes the offspring is better and stronger than either of their parents. I do not know what has become of Alice Maud, a hybrid between G. cruentus and gandavensis, raised by the late Mr. John Standish; but I do not advance any new theory; on the contrary, proofs of the correctness of my views are abundant, and, within a year or two, I hope to introduce to notice a new race of Gladioli, of a more graceful habit than those which we now possess, and with flowers of different shapes and much larger than those of the Gandavensis varieties, several of these flowers measuring as much as 5 inches across. This hint may be of service to Gladiolus raisers. Max Leichtlin.

Baden-Baden.

New Chinese Tulip (Tulipa erythronioides).—Mr. Quekett sends from the Snowy Valley, in the province of Chekiang, a spring-flowering bulb, having the habit of a Dog's-tooth Violet, gathered in March, 1873, which proves to be a very distinct new species of Tulipa, of the section Orithyia, of which we have thus got two new species lately added from China (the other discovered by Dr. Shearer) to the three previously known. Mr. Baker thus describes T. erythronioides in the "Journal of Botany":—The perianth, stamens, and pistil very like those of the Japanese T. edulis, Baker, but habit totally different; the two Erythronium-like leaves opposite and arising from the base of the scape near the soil, and the Fritillary-like whorl of bracts marking it from every other known species. It is, of course, not in cultivation.

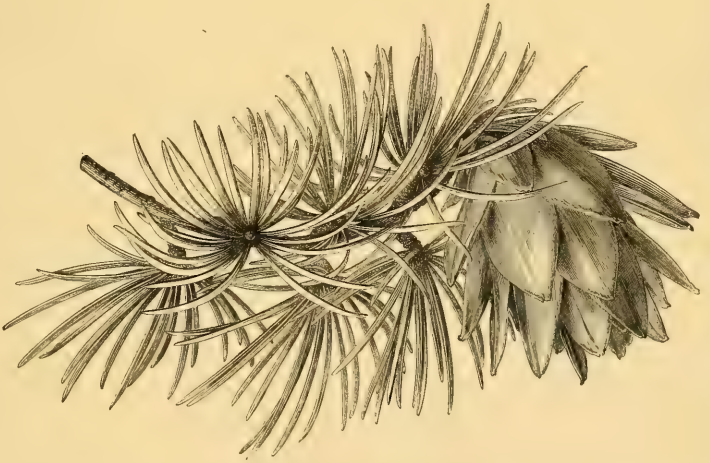
How to grow Calceolarias.—Mr. Simpson's experience respecting Calceolarias, entirely coincides with my own. On taking charge of the flower garden here, I removed the worn out soil from such beds as were intended for Calceolarias—to the depth of a foot, and prepared some mould especially for them. I first put at the bottom 2 inches of cow dung, and filled up, but not too high, with fresh holding loam. I planted them out on the 15th of April; one or two degrees of frost does them no harm, but our place is open, and they were protected with a few Spruce Fir branches, a kind of shelter which they appeared to relish. The result is that four large oval beds have been one mass of bloom all the summer, and just now, Sept. 26th, they look gay and flourishing. I take the cuttings off in the middle of October; plant them thickly in three-light boxes, and re-plant them in February, under cover. No bedding plant with which I am acquainted pays so well for labour and attention as the Calceolaria does; the variety which I grow is aurea floribunda.—R. Gilbert, *Burghley.*

A Novel Button-hole Flower.—The Japanese Tricyrtis hirta is very beautiful when used for this purpose, neatly backed by its own bright green elegantly-shaped leaves. The flowers are white, spotted with puce or purple; and the stamens remind one of those of a Passion-flower. In fact, it is as singular as it is beautiful, and well deserves a place as a coat flower.—B.

TREES AND SHRUBS.

RAISING EARTH ROUND TREE TRUNKS.

During the last twenty years I have often met with instances of the mischievous effect of raising the soil round the trunks of living trees; and in some cases, where only a few inches had been placed round the collar, the result was as disastrous as where the trees had been buried to a greater depth. In making alterations, sufficient care is not always exercised in this matter; and as, perhaps, for a few years no perceptible diminution in the vigour of the tree is noticed, the whole thing is forgotten until the tree becomes sickly, and ultimately dies, when, perhaps, the result is imputed to some other cause. About four years ago a fine old Walnut tree, standing in the grounds here, exhibited symptoms—by its annually decreasing growth and early leaf-fall—of declining health. On examination, it was found, that during some alterations a few years ago the earth had been raised about 8 inches round the trunk, and the bark round the collar was in some places decayed, but, owing to the sinuosities of the trunk, the air, perhaps, had not been so effectually excluded as it would have been in the case of a younger tree, and, therefore, the ill effects had been longer delayed. The earth was at once removed down to its original level, so that the tree stood in a kind of basin, with sloping sides and a diameter of about 10 or 12 feet. I am glad to say the condition of the tree is fast improving, and that it will ultimately recover. Only the other day, I took up a Sycamore tree that was past recovery from the same cause. I have, however, never met with any ill effects from raising the soil over the roots of trees, provided the trunk was not touched by the new soil; but, in some instances, increased vigour has been imparted to unhealthy trees by having top dressings of good fresh soil. Wherever it is necessary to raise the soil in the neighbourhood of large handsome trees, if the surface is sloped upwards from the tree for 3 or 4 feet round the trunk, no harm will follow, or the earth may be supported by brick-work a foot or so from the trunk, and fitted with wooden gratings round the trunk at the top, for the purpose of securing a due circulation of air; only the gratings will have to be inspected occasionally, to see that the place is clean. E. Hobday.



Cone-bearing Twig of Kæmpfer's Larch.

KÆMPFER'S LARCH.

(LARIX KÆMPFERI.)

This handsome hardy Larch, found first by Kæmpfer, and subsequently by Fortune, in the central, northern, and eastern provinces of China, is said to form a splendid tree, varying from 120 to 130 feet in height. Its branches resemble those of the common Larch; its leaves, which are slender, clustered, and deciduous, and which measure from 1½ to 2½ inches long, are of a beautiful pale green when young, but, before falling off in the autumn, assume a fine golden-yellow hue. The cones are pendulous, about 3 inches long, and 2¼ inches in diameter, with excessively deciduous scales, diverging like those of an Artichoke head, to which, on a small scale, the whole cone bears no little resemblance. The seeds are exactly the size of the scales, two of them occupying the whole inner face with their wings—rectilinear where they touch, and curved to correspond with the curvature of the scales on the external edge. The least touch suffices to break up the cones, when the scales fall asunder. Of this Larch, handsome specimens exist in Mr. Bohn's garden at Twickenham, and in many other good collections in different parts of the country.

HYDRANGEA PANICULATA ALBA.

This is one of those first-rate plants brought, at long intervals, to light, that commend themselves to every observer; a few seasons have sufficed to spread it far and near, and it has become a fixture in every garden. Its first certificate of merit consists in its being perfectly hardy—having endured last winter's severity (a sufficient test, certainly) without protection, not a branch having been injured. Though not quite so large, the leaves resemble those of the Weigela in colour and shape, though the margins are more sharply toothed. An idea of the showiness of this plant may be gained when we say that the thyrses will average 18 inches in circumference and 10 inches from the base convexly to the summit; and we (E. S. Carman, in "Moore's Rural") have just measured one of our largest flowers, that is 24 inches in circumference and 14 inches from base to summit. We have six plants, one two years old, the others received from the nursery this spring, and these six plants now bear 120 thyrses of the above enormous dimensions. It is no mean item in its favour that we have not to wait several years for its flowers; indeed, there is no marked difference between the one planted two years ago and those planted this spring. Its foliage and habit are not such as to make it desirable that it should attain a great size, and one season's growth defines, we should judge, its prettiest proportions. The thyrses of this Hydrangea are of the sugar-loaf shape; the flowers when they first appear (about August 8th this year) are white, tinted with green, growing whiter until about September 1st, when the lower florets change to a faint rose, which continues until frost. They may fairly be called white. It is not true—speaking from our own experience—that the colour changes according to the soil. Our six plants grow in quite different soils, and though two of them have been saturated with a strong infusion of the tincture of the muriate of iron no change of colour is yet apparent in the flowers. The showiness of the thyrses is due to the calyces of the external florets, which are white, sometimes of three but usually of four sepals, measuring an inch or more across, with a minute corolla of four petals, an imperfect pistil and eight rudimentary stamens. These impotent flowers spread over the whole surface, while, with the modesty of rare merit, concealed beneath and almost sessile upon the same pedicels are the little fertile flowers less than a quarter of an inch in diameter, consisting of five sepals, five petals, and ten stamens—five long, five short. There is no other one consideration that so smothers one's interest in the shrubs and trees of one's home as to find, after a season or so of fine growth, that a winter of great severity cuts them down to the ground or kills them outright. And it is for this reason that we should prize plants, even though less beautiful in other respects, that are equal to any severity with which the particular locality for which they are selected is likely to be visited. But we have in Hydrangea paniculata alba a shrub that is unquestionably hardy, and that, besides its lavish inflorescence, blooms throughout a long period when, for the most part, other shrubs lend only their foliage to the beauty of the garden. It may be propagated from cuttings readily, and thrives in almost any situation except a hot sandy soil. In this the thyrses are comparatively small and the leaves droop during the heat of the day.

TRANSPLANTING TREES IN AUGUST.

THE gardener at Sans Souci, in a paper which he has recently communicated to the Berlin Horticultural Society, writes as follows on this subject:

In a recent report of a journey made by Prof. Koch, it is stated that, in Paris, tolerably large trees are safely transplanted when covered with leaves, in the middle of August, and that a horticulturist in Paris, M. de Leroy, had last year begun to transplant his fruit trees in August, with the happiest results, which seems incredible to many people in Germany, though, in fact, the same thing has been done in Prince Pückler Muskaus's plantations, and in the Triedensgarten, near Potsdam. I can quite confirm these remarks of Dr. Koch, and beg to communicate the following facts. It is often necessary, where plantations are being made on a large scale, and the ordinary time for planting is insufficient, to transplant trees covered with their leaves and even their blossoms, so that it would be difficult to say in what country this was first ventured upon. I, myself, have for the last ten or twelve years transplanted many such large trees in Potsdam and elsewhere, without any idea that I was doing anything venturesome. The first attempt of this kind which I made was about ten years since in laying out the park at the Villa Ingenheim. The villa was re-built, and, in consequence, it was necessary to remove from the house five strong Juniperus Virginiana, from 30 to 35 feet high, and with stems 6 to 7 inches in diameter. The proprietress lamented the necessity of sacrificing these trees, and consulted me, when I advised that they should be transplanted, as I had already successfully removed many small Conifers during summer, and had no doubt that, with proper precautions, the same might be done with these. The gardener shook his head incredulously, saying, that it was difficult enough to transplant small trees at the proper season, much more such large ones, and that, for his part, he would rather not venture upon it. However, he was obliged to give way, and the removal was effected, the trees having roots of from 8 to 10 feet long, which, during the process of digging out, were tied together in bundles and covered with wet straw. They were immediately re-planted, being constantly syringed all the time, and for about a week they were well watered several times a day with river water. The only branches removed were those which were quite dead. In winter I ordered that the ground should be protected round the stems, and as far as the roots extended; but the gardener, either from carelessness, or for some other reason, only carried this out with three of them. These three flourished; but the other two were killed by the frost. At the same time and place I transplanted a Sycamore, 36 feet high, with a stem of from 7 to 9 inches in diameter, successfully; though, as the soil is there a very poor sand, it was difficult to make it flourish, even by making a very large hole and filling it with loam and good garden soil. It was about the same period, and at the end of August or beginning of September, that I transplanted at Ruithanna, on the estate of Count Dönhoff, among other Conifers, a Thuja occidentalis, which had grown like a tree, and was about 40 feet high. The tree was so heavy that it was impossible to raise it on to the waggon, except by using the timber-lift, which is used for trunks of trees. This tree has also flourished; although being dug up out of a strong clay soil, and re-planted in the same, it necessarily lost a good part of its finer roots. I had all the trees planted very flat, in order to give them the advantage of as much air and warmth penetrating the soil as possible. In the Royal Gardens here many trees have also been transplanted in a similar manner by order of the director, Dr. Lenné; and I would especially mention a large Lime tree transplanted to the ground near the Orangery, and the removal of the groups of trees from the semi-circle near the new palace to the Pfingstberg. The Lime, with a stem of 12 inches in diameter, and a very broad arbour-like crown, was offered to the director by the Eyssenhardt Hospital at Potsdam, at the end of May, about eight years ago, at a time when the young shoots were a foot long, and quite soft and tender, so that it seemed rather a risk to move it, though, after former experience, by no means hopeless. For greater safety the digging up took place towards evening, so that the removal and re-planting took place in the evening, and, during the whole time, the crown and roots were moderately syringed with water, and loose earth thrown on the latter from time to time. The tree was shaded for some days with a great linen cloth, such as is used for carriers' carts, to prevent scorching, and was pumped on with rain water every hour, but the linen was then removed, and the tree left to itself. In that year the shrub did not grow any longer, and the upper buds were only partially developed, but the lower buds were strong, so that in the next year it shot out afresh, and its future health seemed secure, but, unfortunately, it had to be cleared away to make room for other arrangements. From the experience gained in transplanting this tree, it would appear that it is advisable, in order to cause the formation of strong buds, to pinch off the tops of most of the young soft shoots. The transplanting of about twenty loads of young trees from the new palace to the Pfingstberg was undertaken about the middle of September last year, at a time of great and continuous drought. This time I consider, from my experience, to be the best and safest for transplanting Conifers, especially if the removal can take place on a dull cloudy day, and also for other trees which have to be transplanted with their leaves on this time is the best in our climate, as then the formation of their buds is completed, which is, of course, of the utmost importance; this takes place two or three weeks earlier further south, and, in very favourable years, when the summer is very dry and hot, they may be perfected here by the end of August, and then the removal might take place earlier, and especially with such trees and shrubs as early put on an autumnal look. The removal with leaves may, therefore, take place earlier in a dry situation than in a damp one, and those which only have to mature one annual shoot, such as Horse Chestnut and Lilac, and whose buds are ripened by July, are fit to move earlier. In removing the shrubs to the Pfingstberg, about 1¼ English miles, the precaution was used, which is always to be recommended, to strew the roots of the smaller ones, when in the cart, after watering, with fine mould, and to cover those of the larger ones with damp mats, if the small roots are very delicate. In this manner were transplanted bushes twenty years old, 12 to 15 feet high, and one load of lilac Euonymus atro-purpureus, Spiræa opulifolia, species of Syringa and Berberis, and even high-stemmed pink Thorn; and all kept their leaves till the autumn, with frequent waterings, and this year have shot out as freely as if they had been several years in their present position. Of fruit trees, I have transplanted the common Plum (Quetsche), of 4 inches thick and 10 to 12 feet high; and trees of this size are generally very shy of moving. I do this every year, from the middle to the end of September, in full leaf; and every year these trees yield a plentiful crop of fruit at the end of August. I do not consider the tying up the stems of trees with Moss, except in the case of larger trees, of any use. I have never tied up any, and have always transplanted the larger trees without any ball of earth, and yet the result has been most successful.

INDIA-RUBBER PRODUCING PLANTS.*

THESE trees belong to the three following families—1st, Euphorbiaceæ, comprising especially the genera Hevea and Siphonia, different species of which are indigenous to the warm and damp portions of the Amazon basin as well as the Brazilian province of the Rio Grande. The two trees which are the most used for this purpose are the Hevea guianensis and the Siphonia elastica; 2nd, Artocarpeæ, a natural order to which belong the tree named Ulé (Castilloa elastica), which grows in the Gulf of Mexico as far as Guayaquil, and several Fig trees indigenous to India, Java, and the north of Australia; 3rd, Apocyneæ, a family in which we find representatives in the South of Brazil, Equatorial Africa, Madagascar, Malacca, and Borneo. The best india-rubber is that from Para, in which country the harvest commences in the month of August, and is continued in the month of January or February. The milky juice of the Hevea, which is the chief source of the rubber, becomes too watery during the rainy season for being then collected; in the fine season this juice, as soon as it runs from the incisions made in the trees, has the colour and the consistency of cream; the caoutchouc proper soon becomes hardened, and separates itself so as to be suspended in an opaline liquid. It is in the evening, as a rule, that the incisions from which juice is to run are made in the trees, and it is on the following morning that persons go to collect the juice which has flowed out. The Para caoutchouc is more tenacious, purer, and more durable than other kinds; thus it is especially employed in the manufacture of articles which should unite strength with elasticity. Among the trees which yield caoutchouc of second quality, the most useful is the Ulé (Castilloa), which grows in abundance in Central America, and in the western parts of South America, as far as Peru. This India-rubber tree flourishes particularly well in forests with an undergrowth of brush-wood, which are at the same time hot and damp. It arrives at its greatest perfection in the basins of Lakes Nicaragua and Managua. The juice of the

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* Journal de la Société d'Horticulture.

Ulé runs during the whole year, but is best in April. A tree of 50 centimètres, or nearly 20 inches in diameter, properly managed, is capable of yielding 20 gallons of juice, which gives about 25 kilogs. (55 lbs.) of india-rubber. As a general rule, the coagulation of this milk is effected by the addition of certain vegetable juices. The caoutchouc becomes separated in the form of a brown and soft substance, with the odour of fresh cheese. In the district of Saint John, in Nicaragua, there are 600 to 800 persons engaged in drawing off the caoutchouc; about 2,000 may be reckoned in the neighbourhood of Panama, where the reprehensible practice prevails of felling the trees to obtain the milky juice. The worst caoutchouc is that of Guatemala, as it is more or less mixed with resinous substances. The Guatemala india-rubber is, besides, of unequal quality; the best is whitish and the worst spongy. The south of Brazil, between 18° and 16° of S. latitude, produces a good caoutchouc, known under the name of Pernambuco rubber, which is derived from several species of the Hancornia. These trees, about the size of our Apple trees, have pendent branches with narrow leaves, which give them the appearance of Weeping Willows. In Asia the principal India-rubber tree is the Ficus elastica, which is found especially in Assam, India (on this side of the Ganges), in Java, Sumatra, and other places. This is the species which especially produces what is called the Singapore rubber; but, under this name, is also sold that of the Urceola elastica, a climbing species, which attains an immense length. To obtain the juice of this plant it is cut in logs, one end of which is heated; this caoutchouc is of very inferior quality. The Madagascar rubber, obtained from a creeping shrub, is very good, and is worth nearly as much as that of Para; this kind is especially used in France. Equatorial Africa is rich in trees and climbing shrubs which produce caoutchouc; but it is drawn from the wood and prepared so carelessly that the product is of very bad quality. Although the trees which yield caoutchouc are very numerous and widely spread over different countries, the method of preparation is often so primitive and wasteful that there is every reason to fear that, in a not far distant future, this substance, which it would be impossible to do without, will become more and more scarce and, ultimately, fail altogether. It thereby becomes a matter of the highest importance to place the preparation of india-rubber under proper regulations, strictly enforced, or to plant and cultivate young trees in the place of those of spontaneous growth, which are destroyed in large quantities every year.

Value of Trees in Towns.—Mr. Griffiths, the medical officer of health for Sheffield, in his report upon the sanitary condition of that town during 1874, makes the following interesting remarks in reference to street trees:—In the formation of new streets, and on the eve of the contemplated widening and alteration of old ones, it is to be hoped that an effort may be made to provide for the planting and establishment of trees wherever practicable. The pleasing appearance of verdure in summer, and the agreeableness of the shade afforded by the foliage to pedestrians, are benefits to the inhabitants well worth the effort and the cost. Whoever has visited the boulevards of continental towns, or even the squares of London, can testify to the advantages of verdure as offering pleasure to the eye and gratification to the mind. Moreover, from a sanitary point of view, the benefits are of incalculable value. It has been asserted that the aggregate surfaces of the leaves of well-grown Elm, Lime, and Sycamore trees, with their six to seven million leaves, equal about 200,000 square feet, or about 5 acres; and these are almost constantly absorbing and digesting the carbonic acid and various exhalations given off by the putrefaction of animal and vegetable matter, and, as if grateful for such support, return into the air pure oxygen, which re-invigorates and renews animal life. Trees thus remove poison from our midst, and to be without them is an oversight. Trees can be had which will exist, with suitable attention, in any part of the city. Why not, with all the above facts before us, have them and try them?

NOTES AND QUESTIONS ON TREES AND SHRUBS.

The Californian Bay (Oreodaphne californica), hardy in the south and west of England, is one of the grand trees that adorn the canons of the rocky mountains. Sometimes stumps are found 8 feet in diameter, and the estimated age is 800 years. Its leaves, when crushed, emit a strong and agreeable odour. They are used in the manufacture of Bay water. The tree is effective in ornamental grounds.

Male and Female Araucarias.—A notion prevails that the sex of the Araucaria imbricata can be known by the habit of the tree—the male being robust and thickly set with branches, and the female slender and lanky in character. However, when the female bears cones, the distinction vanishes. It seems that the Araucaria, from seed, differs almost as much as the Cupressus Lawsoniana, there being scarcely two to be found alike in every particular.—R. M.

THE FLOWER GARDEN.

A HANDSOME BERRY-BEARING PLANT.

(PRATIA LITTORALIS.)

Although this plant, with its deeply notched white flowers, is, as regards the corolla rising above its procumbent branches, by no means devoid of both beauty and interest, its especial claim to a more general recognition than it at present enjoys hinges on its appearance, such as it presents at the present time in our Alpine collections, when studded with hundreds of its fleshy fruit capsules, some fully exposed, some half buried amongst its tiny brownish leaves. In this condition it almost rivals the charming fruiting Duckweed (Nertera depressa), and all who are familiar with the beauty of the latter will admit that this statement bears on the face of it a high testimonial of merit. Along with the procumbent habit of the Nertera it has a decided advantage in the size of the fruit over its rival, each one being as large as an ordinary Pea, added to which its flowers are conspicuous and produced freely during the summer, whereas those of the Nertera require the practical eye of the botanist to detect. I do not wish for a moment to exalt the one plant at the expense of the other, and my advice to all cultivators is to adopt the oft-repeated Scotch adage—"Baith's the best," and act upon it. They will then find that just as the beauty of the scarlet berries of their summer pet begins to fail the fleshy capsules of the Pratia will be assuming their rich magenta tint of autumn. Having said so much in its favour, possibly some of your readers would like to know something more about the plant, and, with a view to gratify their curiosity, I will now offer a few remarks. Let me premise that it is no new plant; I have cultivated it for the last five and twenty years, or more, and distributed it very freely amongst my botanical friends, under the title, first of Lobelia ilicifolia (which it is not), and then of Pratia littoralis var. ilicifolia; possibly the variation cognomen might be omitted altogether, and the plant considered only as a stunted form, arising from exceptional conditions in the way of growth. Be this as it may, one plant, as cultivated in a shallow pan, presents the appearance of a mass of procumbent dark brown stems of intermingled growth, covered with small dentate leaves of dark olive-green, scarcely exceeding a quarter of an inch in length; these not only form a regular cushion over the entire surface, but run down the sides of the pot, and extend themselves along the surface of the ashes on which they are placed. This will at once denote that it possesses a considerable amount of vigour; but I may as well here warn cultivators against two great enemies it has to contend with, namely, first, snails, which have a most especial liking for it, and are only too ready to gratify their gourmandising propensities at its expense; and, secondly, the Marchantia, or Liverwort, which is always liable to smother it in its embrace. When the latter has invaded your pot, and become established, the best plan is to shake off every particle of soil, pick out the fragments of the stem from the octopus-like grip of the cellular roots of the Marchantia, wash them thoroughly, place them on the surface of a pot of any ordinary soil, and apply a good coating of silver sand; then let them start life afresh, always keeping a watchful eye on the enemy, should he put in an appearance with the young growth. The plant is a native of either New Zealand or the Cape, possibly of both; and, though not absolutely hardy, in the general acceptation of the term, is certainly so in the south of England, and with us here stands perfectly well in a cold frame. It appears to be very impatient of dryness during the summer time; otherwise, it might be recommended as admirably adapted for a suspended basket. I have had it on a shelf in a moderately damp cool house, hanging down fully 9 inches, and, when these pendent branches are covered with fruit, the effect is really charming. There are at least two species in cultivation, Pratia littoralis, which I have just described, and P. angulata, a much more rambling grower, and larger in both foliage and fruit, but the latter lacks the intense colour that constitutes the great value of the former. Both grow freely in any ordinary garden soil, and may be increased by cuttings, division, and by seeds.

Jas. C. Niven.

Botanic Gardens, Hull.

MANIHOT CARTHAGINENSIS.

Amongst new plants of undoubted merit, this occupies a prominent place, possessing, as it does, both grace and beauty. It is a Euphorbiaceous plant, and is related, somewhat distantly it is true, to Ricinus, which it resembles in size and hardiness, but which it excels in the elegance of its leaves. This plant originally came from South America, but thrives well in the open air near Paris during the summer months. M. Naudin, writing in the "Revue Horticole," states that about four years ago he received three seeds of this plant from Professor Baillon; he sowed them in the open ground the following spring, and, though subjected to no heat beyond that of the sun, they came up without accident and furnished three young plants, of which one was subsequently lost by a mishap. The two others, left out of doors without any shelter, survived three winters without injury—that is to say, only the tips of the branches, which were affected by a frost of two or three degrees, were hurt. Last year both plants bloomed, but this year matters have assumed quite a different aspect with them, and their development was such after the rains at the commencement of the summer that M. Naudin was obliged to prune back freely the excess of their exuberant growth. One of them—the strongest, for it was grown in the best soil—has become a large shrub more than 10 feet high, the hemispherical head of which measures at least 13 feet in diameter. Since June it has bloomed incessantly, and on the 1st of September it bore numerous fruit, which had almost completely ripened. M. carthaginensis has a single erect stem surmounted by a large crown of digitate leaves which give it, at an early stage of its growth, somewhat the appearance of a small Palm. Soon, however, four branches—sometimes one more or less, according to the strength of the plant—are thrown out, and are themselves soon sub-divided into smaller branches. At this stage of development, the flowers begin to appear—first the female at the lower part of the inflorescence, then the male at the upper part. Through the instrumentality of the wind and insects fertilisation is effected, and to the inflorescence succeeds the thyrsus of fruit which would be almost identical with that of Ricinus if it were not perfectly smooth. On the approach of winter the leaves of the Manihot fall and it produces others in the following April. This singular plant is almost hardy at Collioure, and a plant that is hardy there would most likely bear planting out of doors with us in summer. Nothing would be easier than to raise it in a temperate house and place it out of doors about the middle of May. Planted in the centres of clumps or in the form of isolated specimens on Grass, it would be quite as effective as a Palm of the same stature.

Gymnothrix latifolia in Cork.—My experience of this plant' now of more than two years' duration, in no wise confirms Mr. Williams's expectations (see p. 318) as to this fine ornamental Grass being evergreen, or producing persistent stems in the open air when grown in a milder or more southern part of the kingdom. Here, on the mild sea-board of the county of Cork, where we probably have warmer winters than in any other part of the United Kingdom, this Grass disappears quite as completely towards the end of each year as it seems to do in the much more severe climate of Lancashire, its apparently strong and tough Bamboo-like stem seeming to melt utterly away, and leaving nothing visible above the ground. It, however, begins to grow here earlier than in Lancashire, about the month of May, and has perfected its growth about the end of July. It, also, does not here attain the height mentioned by your correspondent, my tallest stem only measuring 2 feet 8 inches; neither does it continue to throw up suckers, as his plant seems to do, to clothe the bottom of the plant with foliage, the foot of my stems nearest the ground being quite bare of leaves. It, however, increases very fast, a small plant from a 48-sized pot, planted out in the autumn of 1873, having now twenty strong canes. I should like to know why this Grass never produces the purple inflorescence which belongs to it in this country.—W. E. Gumbleton, *Belgrove.*

Blue Hydrangeas.—In order to turn pink Hydrangeas into blue ones, water the soil in which they are growing with a weak solution of iron; get some rusty nails and iron filings, steep them in water, and use the water once or twice a-week while the plants are growing. I remember a bank, in South Wales, on which we used to have blue Hydrangeas in perfection. It consisted chiefly of refuse from iron furnaces, and if we removed the plants to another part of the grounds, instead of producing blue flowers, they gradually reverted to the usual pink form.—H. E. W.

—— I have often seen blue flowers on Hydrangeas planted in a clayey soil, and plants raised from the same Hydrangeas if planted in a light soil enriched with leaf mould would produce pink flowers. I have seen it stated that Hydrangeas planted in a soil impregnated with iron ore are sure to produce deep blue flowers. When lately in the island of Arran in the west of Scotland, I saw a Hydrangea nearly 10 feet in height, and bushy in proportion, and with an immense number of large heads of flowers all over it. It was planted out in the kitchen garden of a villa there, and produced pink flowers, for it grew in a sandy soil.—William Tillery.

Winter Protection of Yuccas (see p. 305).—There are very few Yuccas that would require protection in Carlow; but those that do can be protected in two ways. The leaves can all be carefully tied together and something placed on the top. This gives the least trouble, but the plants look very ugly during the winter, and the leaves are apt to get bent and broken. The other plan is to put a board over them that will prevent the rain reaching any part. In the open borders, this can be done by tying the board to four posts. If the plants are near a wall, a board can be easily slung from the wall that will shoot off rain. Of course, a frame-light is as good as a board, or better.—Henry N. Ellacombe, *Bitton Vicarage.*

Fine Hardy Asters.—These are remarkably showy this autumn, particularly the following kinds, which I would recommend to all lovers of hardy and herbaceous plants, viz., Bessarabicus, longifolius, formosus (a perfect gem), Chapmani (an exceedingly graceful kind, which grows 4 feet high), and pulcherrimus. Fortunei is a fine species, but it has not done well with me this season. Grandiflorus flowered beautifully last year, and promises to be equally fine here this season; I consider it one of the finest species in cultivation. Sericeus does not thrive here; Reevesi is a very dwarf interesting kind; Dumosus, too, is a dwarf, and very floriferous species.—J. Whittaker, *Morley, Derby.*

White Bedding Lobelias.—Mr. Gumbleton writes disparagingly of the new white Lobelia Duchess of Edinburgh. When it was first exhibited at South Kensington it was so well flowered, and looked so effective, that I thought it a really good variety, and certainly an improvement on all the whites belonging to the speciosa type. I fear, however, that white Lobelias, even of the very best forms, will never make effective bedding plants; as, even when equally well bloomed, they are much less striking than the blue kind. Blue Beauty is one of the very best of the dwarf section of Lobelias, and of this there is a pure white form largely grown at Aston Park, but, even at its best, the effect which it produces is by no means equal to that of its blue associate.—D.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Mandevilla suaveolens in Devonshire.—This is now flowering freely on sunny walls in Devonshire near the coast, and also at Starcross, a few miles from Exeter. I have seen the orange-scarlet Eccremocarpus scaber completely draping homely old thatched cottages in many parts of Devon, but the snow-white Mandevilla and Jackman's purple Clematis would be a most pleasing combination for sheltered Devonshire coombes and for warm dells in the south-west of Ireland.—B.

Pelargonium Mrs. Upton.—At Haverholm Priory, I saw, the other day, four large beds of this Pelargonium still beautifully in bloom, not a seed-pod being visible on it. This is the finest Pelargonium of its class I have yet seen. —Richard Nisbet, *Aswarby Park.*

Althæa Frotoviana.—This, which is now in bloom here, has large buff flowers, shaded with red. In stature and habit of growth it closely resembles the Hollyhock, A. rosea, but the leaves are more sharply pointed.—H. Harpur Crewe, *Drayton-Beauchamp Rectory, Tring.*

Second-flowering of Campanula garganica.—I have this very pretty spring-blooming Campanula again in full flower in a large pot. It is the same as was shown at South Kensington with other hardy plants last June. Although out of season, it is none the less acceptable, and as an autumn-blooming, as well as a spring-flowering species, it is especially valuable.—A. Dean.

Surface-rooting Plants for Bulb Borders.—Inasmuch as borders devoted to bulbs must be without flowers, in some parts, for a considerable portion of the year, it would probably interest many besides myself if some of your readers would kindly furnish a list of surface-rooting annuals of showy habit, which would enliven such borders during their otherwise flowerless seasons.—W. T. P.

Dendrobium aqueum.—A fine specimen of this is just now bearing a profusion of flowers, being the second crop borne on the same growths within the last two months. It is a native of Bombay, and is figured in the "Botanical Magazine;" but either the figure must be a poor representation of the flower, or this must be a fine variety, for the flowers are pure white, with the faintest possible tinge of green on the exterior.—J. S.

Scentless Roses.—Mr. Taylor includes Anna Alexieff among his list of scented Roses. I think, charming and abundant as her blossoms are, and free as is her habit, she can hardly claim sweetness as one of her merits. This Rose is almost scentless, entirely so on some days, and only exhibits a faint perfume on others. It is well that attention should be called to the importance of cultivating perfume in Roses. Without that quality how can they hold their own against Camellias and Rhododendrons?—Salmoniceps.

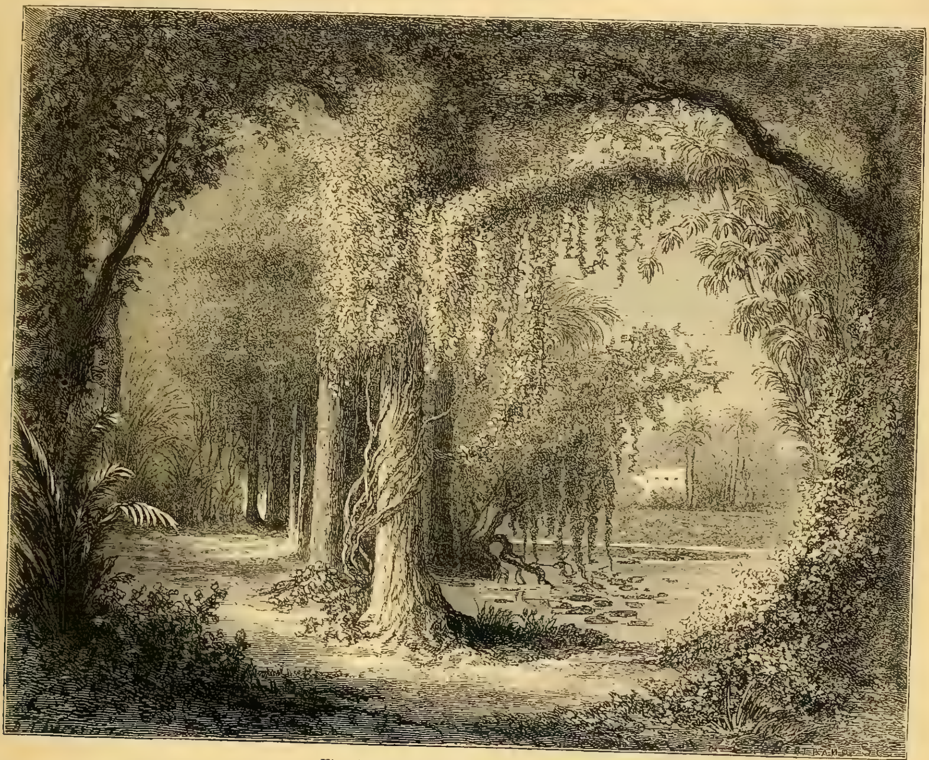
Carpet Bedding at Aston Park, Birmingham.—This has been extremely well done at the Lower Grounds this season. Some novel and many pleasing combinations have been effected, which have afforded much pleasure to the many thousands who have visited these grounds. At the present time (Oct. 9) the carpet beds are still in great beauty, while the beds filled with Geraniums and other summer bedding plants are masses of leaves only, the recent heavy rains having produced gross rampant growth.—E. W. Bradley.

Variegated Chinese Honeysuckle.—I find this useful for clothing the base of common Honeysuckles where the latter have become naked. It will reach a height of 12 feet, if properly planted, in about as many months.—M.

A TROPICAL GARDEN.

The accompanying illustration represents a view in the Botanic Gardens at Saint Pierre, Martinique, where tropical vegetation of nearly all kinds luxuriates in the open air; in fact, under the management of M. Bellangé, these gardens, besides being a very beautiful promenade, are said to have been unusually well furnished in this respect, the trees and shrubs of the torrid zone being represented to an extent seldom equalled in gardens of far greater extent. The tree in the foreground draped with some of the Lianes, or climbers of the tropical forests, teaches a lesson which we seem to learn but slowly; for, how very rarely do we see either stems or branches in this country draped with climbers, although they never look more charming than when seen in such positions. Wistaria sinensis, Aristolochia Sipho, or the Virginian Creeper, are admirably adapted for carrying out this style of garden ornamentation, and these plants would look far more natural and graceful in such situations than when nailed stiffly on a wall. At Sudbury House, Hammersmith, some branches of the common Ampelopsis, or Virginian Creeper, have taken possession of the branches of a Plum tree, which is just now wreathed in crimson, yellow, and green, the effect of which is excellent, the different shades of colour being as rich as those of a Virginian forest. Elsewhere we have seen the Wistaria used with excellent effect in draping trees, and in the Jardin des Plantes, at Paris, a tree nearly 40 feet in height, is loaded with this graceful plant, which, falling in tangled masses in every way, is far more effective than when on walls. The common Grape Vine, if started in good soil, would form one of the finest of all climbing or trailing plants for over-running the stems and branches of ornamental trees on our lawns, and would add a new feature to our pleasure grounds.

B.



View in the Botanic Gardens, Martinique.

Plants for Church Decoration.—Allow me to add to the list (see p. 302) of plants adapted for church decoration, at this season of the year, the sprays of Passiflora racemosa. Not only is the plant, from its name, specially appropriate for the purpose, but it is capable of being utilised as light festoons—say, in the more elaborate decoration of the pulpit or font. The objection may be raised, that the flowers which have the special symbolical interest are short-lived; but I find that this, to my astonishment, is fully compensated by the lasting freshness which the foliage retains. Some sprays that I cut more than a fortnight ago still remain as fresh as ever, where all except the hard leathery leaves of evergreens, such as Yew, Box, and Ivy, have collapsed. I may further add that the flowers of Lapageria rosea, with which the festoons were supplemented, are equally fresh. Your correspondent alludes to Ivy berries at this season of the year; possibly, it would be more correct to say buds and flowers, both of which give even a more pleasing variation in colour than even the berries themselves—were the latter obtainable at this season. I would add another element which is capable of very artistic utilisation for the same purpose; namely, the masses of fruit of the Ash, which this year are produced in unusual abundance; they form very pretty pendent objects, and their beauty is enhanced when mixed with a few heads of Barley. So popular have church decorations become in connection with the in-gathering of the harvest, that I feel sure any additions to the materials generally available will be appreciated by your readers.—J. C. Niven, *Botanic Gardens, Hull.*

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Bedding Calceolarias.—Cuttings of these should now be put in; it is not a good practice to strike them too early, as they get too large in the spring before planting-out time. This renders them more liable to disease, which is generally common with plants that have been struck too early. The best mode of striking and wintering Calceolarias, for bedding purposes, differs from that which is required by most plants. They are much hardier in some respects than the generality of other bedding subjects, such as Pelargoniums, Ageratums, or Lobelias, not being at all liable to damp in a moist atmosphere with a low temperature, but are rather benefited by being kept cool and moist. Instead of using pots or pans for the cuttings, it is better to prepare a frame sufficiently large to hold all that will be required, and some wherewith to make good losses, and also to replace any that may go off after the beds are first filled at bedding-out time. The cuttings should stand 3 inches apart, and the soil should consist of ordinary loam, that must be made light by the addition of sand, old potting-soil, or leaf mould. If it is not of a loose character when the plants have to be moved sufficient soil will not adhere to them, and the roots will be seriously mutilated; it should be made fine by passing it through a half-inch sieve, if possible. The shoots, of which the cuttings are to be made, should consist of such as spring principally from the base of the plants, and are in free growth, without showing any disposition to flower—any that do so will not root freely. Use only the points that are quite soft, severing them at about the third joint below the top; make the holes with a wooden dibber, a little more than an inch in depth, closing the soil firmly about them, and giving them a good watering as soon as they are inserted; they must never be allowed to flag through getting too dry. They are water-loving plants, and will not damp from being kept quite moist. Give a little air every day, or there will be danger of their becoming soft, which would render them unable to bear the confined stagnant atmosphere to which they must be submitted should the winter be severe. Throw a mat over the glass in the evenings when there is an appearance of frost. Thus treated they will root before the end of the year. In severe weather they must be protected by 15 inches of litter packed closely all round the sides of the frame level with the top, and to keep this from being disturbed by the wind some stout stakes should be driven down at intervals of 2 feet all round the litter. At such times mats should be placed on the lights, and over these a foot thick of litter or Fern, on which pieces of wood should be placed to keep it from being blown off. The nature of these plants is such that, if so confined for a whole month, as they often are during protracted frosts, no harm will occur. Even if sufficient cuttings of the different kinds of bedding Pelargoniums have been put in for next summer's use it is advisable to lift some of those that have been planted out this year, especially of the tricolor section. The smallest and most compact plants should be selected; those closely cut in some weeks back for cuttings, and that have now broken into growth, will be the most suitable, as, with such, there will be no necessity for further reducing their tops, which should, as much as possible be avoided at the time of lifting, unless the plants can at once be accommodated with a little heat to set their roots moving; in a cold house the stems that are cut back are liable to rot further down. Put them in pots as small as the roots can be got into without undue compression; remove a considerable number of the largest leaves, which will in some measure prevent flagging, and avoid the necessity, for a time, of giving much water. Use sandy soil, and pot firmly; place them near the glass, and if in a pit, where they can have a little heat turned on for a few weeks, all the better. Such plants will not only flower more profusely than young ones next summer, but will furnish a crop of cuttings, if required in the spring before bedding-out time.

Chrysanthemums in pots must be well attended to; continue to supply them liberally with manure-water, now that their flowers are fast swelling, and, on the appearance of frost they must be placed indoors or where they can in some way be protected; for, although they will bear a considerable amount of frost, without perceptibly damaging the leaves, it injures the advancing blooms.

Potatoes.—If any late Potatoes still remain unlifted, they should at once be got up; there will now be no difficulty in separating the diseased from the sound tubers, as those affected will by this time have become altogether rotten. Choose dry weather for taking them up, and allow them to lay for some hours on the surface, so as to get the soil which adheres to them dry before storing. If there is no proper root shed available they may be put in any building where room can be afforded, and from which frost can be excluded; those that were taken up previously, and amongst which disease had appeared, should be turned over and examined, as it is certain that some will be found that are affected, and if these are not removed they communicate the disease to those with which they come in contact. Where it can be had there is nothing better than dry Fern—the common Bracken—for covering, as it lies light, and allows all the moisture they throw off to escape. If placed over them to a depth of 8 inches it will exclude a very severe frost, even in an exposed shed. Where Ferns cannot be got straw must be used instead. Potatoes, thus kept, are much better in quality than such as are stored in clamps.

Kitchen Garden Work.—More earth should now be placed to successional and late crops of Celery; an additional 6 inches will be enough at one time for that intended for use after Christmas, for the longer the final earthing-up is deferred the better the Celery will keep, provided the operation is not delayed until injury from frost occurs. Pea haulm from crops that have ceased bearing should be taken up, as it not only has an unsightly appearance, but such work is much more expeditiously performed before the land gets so wet as to make it unfit to tread upon. If the haulm is dried and kept in some dry situation, it will be found useful later on in the place of straw or litter for protecting Celery or other plants from frost. In the vicinity of towns, where Pea sticks are scarce, amateurs have often a difficulty in obtaining them, and, although Peas do not cling to old sticks as well as to new ones that have been cut during the previous winter, appearing not to like the green mould that usually exists on the bark of old sticks, still, the best of them should be kept, and, when used next summer, mixed with a number of new ones. If shed room can be afforded them they will keep much better. The wire, hurdle-like contrivances that are used as substitutes for Pea sticks have two faults—they are dear, and do not keep the Peas in an open position that allows the air to pass through them, and the advancing shoots during the growing season continually protrude through the wires and thus get broken with the wind. As ground is cleared it should be dug over for the winter. In doing this the amateur must be guided by the nature of the soil; where both surface and sub-soil are naturally open and porous, it may be laid up in the ordinary narrow ridges. Treated thus it gets mellowed by the action of frost; but, in heavy retentive soils, the rains are thrown off the ridges into the alternate hollows which become saturated, and in the spring, when the ground is required for cropping, it is not in proper condition for the reception of seeds. In such a soil it is better not to ridge, but to dig it over, keeping it level, but, at the same time, turning it up roughly and leaving it as open as possible without attempting to break the clods. All ground that is used for vegetable crops should be trenched every three or four years, a couple of inches of fresh earth being brought to the surface on each occasion. This more particularly applies to old gardens where if it is not done, the surface becomes exhausted. It is necessary thus to discriminate between old and new gardens, as, in the latter, at a comparatively small depth, the soil is yet crude. To bring any considerable quantity of this to the top, and to more or less bury the surface soil that has, by stirring and exposure to sun and air, together with the application of manure, become better adapted to the requirements of plant life, would be a serious mistake, which would be most injurious in its consequences to the crops for a year or two afterwards. With such land as this, that is yet deficient in depth of aërated soil, it is better not to bring much of the under portion to the top, but, in trenching, to loosen about 6 inches of the bottom that has not previously been stirred. In this way it will gradually be mellowed, and the manurial elements that are washed down from the surface, are incorporated with it, in which condition it may gradually be brought up, and mixed with the top soil. In trenching ground of every description, it is well to put some manure in the bottom; its admixture with the soil beneath very much improves the latter, and here it answers as a store for the support of the roots during dry parching summer weather. This operation of digging and trenching in the autumn is of the greatest importance to successful vegetable culture, and never should be delayed, after the ground is cleared, longer than can be avoided, as it is much more effective, and can be carried out with more ease and expedition before the land is soaked by the rains that may be expected towards the close of the year. In addition to the effects it has in aërating and pulverising the soil, it is the means of destroying quantities of slugs and wireworms and their eggs, and also weeds that have newly vegetated. Where a high system of culture is carried out, weeds and animal pests are alike reduced to the lowest point by frequently stirring the soil. The latest Apples and Pears that may yet be ungathered should, without further delay, be got in and stored, as has been previously directed.

Roses.

The wood of Hybrid Perpetual and climbing Roses will now be found to be in good condition for making cuttings, which may be planted out of doors in a south-west border, or in some other suitable and convenient spot, where they can be readily inspected during the winter months. When frost occurs, some dry straw litter should be shaken over them, and over that, if the weather is very severe, a mat may be placed. In making the cuttings they should be from 9 to 12 inches in length, the three bottom buds should be removed, and the cuttings should be taken off with a clean cut, so as not to bruise the bark, cutting close up to the bud. The cuttings should then be planted in rows, from 9 to 12 inches apart and 6 inches asunder in the rows, placing a little finely-sifted leaf mould and sand at the base of the cuttings. If the ground is well worked and friable and not too wet during the winter months, hundreds of cuttings may be propagated in this way.—H. G.

The Flower Garden and Pleasure Grounds.

The comparatively cold and foggy nights, and the heavy and continuous rainfall, which have followed a long period of dry weather, have impaired, for a time at least, the beauty of the flower garden; and, considering the advanced season, the floral display may be considered to have come to an end. At the present time, plants grown for the beauty of their foliage, contrast very favourably with flowering species, proving the propriety of judiciously introducing subjects of this class into the parterres, which, during the past season, wore an attractive aspect, long before the flowering species had made any very perceptible progress; and now, when their beauty is all but destroyed, the foliage-plants are still in excellent condition. The Golden Feather Pyrethrum and the Stellaria graminea aurea have never been of a more golden hue than they are now. Nor have the pretty Alternantheras and the rich coloured Coleuses and Iresines ever been in better condition. The foliage of the Cineraria maritima has never been whiter, nor that of the Perilla and bedding Beet darker, and, on the whole, more effective than they are at the present time. Cuttings of Calceolarias and various other bedding plants may still be inserted; and, as regards many species, it may have been found difficult to obtain them at an earlier period. Increased care will now, however, be necessary to induce these cuttings to strike root freely; for, although the various kinds of bedding Calceolarias may still be struck in a pit or frame, a slight bottom-heat and an atmospheric temperature of 65° will be necessary to induce those of most other kinds of bedding plants to root successfully. Rooted cuttings, however, may still be fully exposed to the open air during the day when the weather is mild, but it will no longer be safe to leave them uncovered during the night. Variety in the shade of colour, as well as in the form of the foliage of the various species of trees used for embellishing the park and the pleasure grounds, is of the greatest importance, and should have full consideration when making selections for planting. Where trees already planted are found to stand too close together, they must be thinned out; and wherever it is found necessary to prune or to remove large branches, this operation may safely be performed at once. It is quite unnecessary to wait until the leaves have all fallen before doing so, and if alterations are contemplated which involve transplantation of trees and shrubs, the re-laying of turf, or the planting of Box or other edgings, the sooner such work is accomplished the better, so as to allow the turf time to get established, and the trees and shrubs to form fresh roots and to recover from the check they have received before very severe weather sets in, and the soil becomes cold. While such work as this is being pushed forward as rapidly as possible, the usual routine operations must not be neglected. Mowing may not now be often required, unless the weather should continue very mild, when it may be necessary to pass the mowing-machine, or the scythe, over the lawn once more. The sweeping-up of the fast-falling leaves, and the removal of worm-casts, &c., must be continued; and, to maintain gravel walks in good condition, they should be frequently rolled with a somewhat heavy roller.—P. Grieve, *Culford, Bury St. Edmunds.*

Hardy Flowers.

Perhaps the most useful of all perennials are the Delphiniums, growing from 2 to 7 feet in height, and of every shade of blue, single and double. Many of the newer and better varieties are the most splendid ornaments of the mixed border. I mention these amongst the autumn-flowering plants, because if cut over close to the ground after their flush of summer bloom is past, they will flower strongly a second time. Some persons may leave them for seed, but as the new varieties do not produce themselves true it is not worth doing, and a second crop of bloom is lost. From a mixed packet of seeds there will occasionally spring some plants distinct enough to be preserved for the choicest part of the borders, and the remainder may be, with advantage, transferred to the wild garden; where, however, I do not find they flourish well unless accommodated with some good soil to help them, though they will grow almost anywhere. The Delphiniums are generally divided by nurserymen into three sections; the first includes the true bedding varieties, and is the most useful, the types being D. Belladonna with sky blue, and D. Hendersoni with porcelain blue, flowers. The second section comprises those of a dwarf-branching habit, including the double varieties, of the Ranunculus-flowered type; and the third includes the tall sorts (the type being D. elatum) of every shade of blue, and which are fine ornaments for the back row of the mixed border. Of a very different family is the pretty little Acæna microphylla, from New Zealand, suitable for the front line of the garden, or for carpeting the ground under taller plants. It only grows 2 inches in height, and the flowers are quite inconspicuous, but the little round heads are clothed with long rose-coloured spines, giving it an elegant and dressy appearance. It is so very dwarf that its best place would be on rock-work or somewhere near the eye. In Dr. J. D. Hooker's account, in his "Handbook of the New Zealand Flora," he says that the Acæna genus is "a remarkable one, confined to the southern temperate and antarctic regions," with a few exceptions, "the barbed calyces of various species form burrs, which in some pastures in Australia, adhere to the sheep in such quantities as to seriously injure the fleece." Probably, this species would be A. sanguisorba, which hinders people when walking by hooking into parts of their dresses in Tasmania. A very graceful and pretty perennial, which has been in bloom for the last month, and which I have not seen mentioned in The Garden is Gaura Lindheimeri. It grows 4 feet high, with pure white and rose flowers, freely produced in long spikes. Belonging to the Evening Primrose family, and thriving in ordinary sandy loam, it is a plant deserving more notice than it seems to have received. Alongside it are two showy plants, viz., Buphthalmum salicifolium and B. speciosum, both with large yellow-rayed flowers; the former has darker flowers than B. speciosum, and narrower leaves, but the individual blooms are not so large. They should both be grown in a collection, and are strong enough to be planted out by wood-walks in good soil. The latter plant is worth growing solely for the effect of its large foliage. The old Lychnis chalcedonica is a fine ornament for the back of borders, but is quite surpassed by its double variety, which is not often met with; in size and colour (the most brilliant scarlet), it surpasses a Geranium, and, moreover, remains a long time in bloom. The most brilliant of all hardy perennials is, in my estimation, Lychnis Haageana—rather a difficult plant to grow. With me it thrives in one border; but, in the next, apparently similar, will not do at all. There are many shades of colour; but the best is the scarlet one (the deep rose-coloured variety runs it hard), with flowers 2 inches across, and quite dazzling in the sun-light. In fact, I cannot sufficiently praise it, and the very fact of its requiring some care in its cultivation will make it doubly valuable to people who rather enjoy overcoming difficulties. I cannot see why it should not thrive equally well in apparently identical soils and positions, but the reason I have, as yet, failed to discover. I have often succeeded with it without any trouble, but have still oftener (I regret to say) failed. One thing seems clear—*i.e.*, that it will not bear transplantation in autumn; and another, that when once it makes a good start there will be little fear of losing it. As it is quite equal, if not superior, to the scarlet Geranium in brilliancy, and far surpasses it the size of its individual blooms, it is worth any trouble to establish. One of the newer Saxifrages, and said to be the finest of its family, is S. peltata, of which I cannot, as yet, speak, as I have not yet flowered my plant, but it is growing very vigorously, and I hope some day to be able to report on it. It is said to grow 2½ feet, "supporting a cyme of beautiful rose-coloured flowers;" the leaves are 12 inches in diameter, on "foot-stalks from 1½ to 2 feet in height;" judging from which account S. peltata ought to be something out of the common. It requires a moist shady situation. Some of your readers may be able to tell us something more about it.—Oxon.

Indoor Fruit Department.

Vines.—Pot Vines which were ripened early and which have been at rest for the last few weeks may now be placed in their forcing quarters, where, if rightly managed, they will produce ripe fruit about the beginning of April. It is better to start them early and quietly than late and then to hurry them. Prune small shoots which may project from the main cane, scrub all the wood carefully with soap and water, and apply styptic to all parts which have been recently cut. Where any of the extreme eyes have started while the Vines were growing the latter should be cut back to the first dormant bud. When cleaned, remove every particle of loose soil from the surface of the roots, and substitute loam and rotten cow dung, in equal parts, to a depth of at least 1 inch below the rim of the pot. In cases where the pots are so full of roots that little or no surface dressing can be added, it is a good plan to place a piece of tin or zinc, 3 or 4 inches deep, round the inside of the rim, and to fill the additional space thus given with the compost just recommended.

Water the roots several times, in order that every part of the ball may be thoroughly moistened, after which they should be placed in the house or pit in which they are to be started. During the early part of their growth they like a bottom-heat of 70°, and where a house is wholly devoted to their culture this can easily be afforded them. They also succeed well plunged here and there amongst Pines, and where such means are wanting they may be put into a dung frame for a few weeks; until their leaves begin to develop themselves little water will be needed at the root. The atmospheric temperature must not be kept high; 50° at night and 60° during the daytime will be sufficient to start with. The rods should be gently syringed every afternoon, and the canes should not be tied up tightly until the young shoots are 1 or 2 inches in length.

Pines.—Care must be taken not to keep houses in which fruit is swelling saturated with moisture after this time, or the crowns will soon grow an unsightly length; with a bottom-heat of 85° these plants do not now require water at the root oftener than once a week, and a little guano may be used at each watering. Suckers must not be watered unless they absolutely require it. For some months from this time they will succeed without other moisture than that which they derive from the plunging materials.—J. Muir.

Hardy Fruit.

When fruit harvesting has been brought to a close, attention ought to be paid to the state of the trees, which should be root-pruned, top-dressed, or planted afresh, as may appear necessary, and as was recommended in a former calendar; should the latter operation be decided upon all the old soil should be removed, and the border re-made with the best loam that can be procured; if the soil be heavy and retentive of moisture, charred refuse from the rubbish-heap, charcoal, or burnt clay should be added to keep it open. If the soil is light, add a large percentage of chalk, or, if this is not obtainable, the ground should be trodden very firm, and this will, in some measure, answer as well as heavier soil. Though I am in favour of feeding and treating all kinds of fruit trees more liberally than is generally thought necessary, I have the greatest objection to mixing stable or farmyard manure with the soil when planting. The practice leads to the development of Fungus, which has destroyed many promising young trees. Manure should only be given in the form of rich mulchings or manurial waterings, either of which never fail to keep the trees in full vigour and fruitfulness. It is a great error—though believed in by many—to suppose that fruit trees generally require, and do best in, poor soils. My experience is just the reverse, viz., that regular yearly cropping is only ensured by generous feeding. Moreover, another advantage in manuring for heavy cropping is that it acts as both a root and top pruner; there is nothing so effectual in checking gross vegetation, or for preventing the necessity of root-pruning, as a full crop of fruit; but, of course, to stand this annually, the trees must be liberally dealt with. Do not plant too deeply; as a rule, the trees should never be planted deeper than they were in the nursery grounds; if they are, it frequently happens that for a time they refuse to grow, and, in some cases, are killed outright. As to the best varieties to plant, almost all cultivators have their favourites, and those kinds that are suited to one part of the country often fail in others. It is difficult to give a list of trees that would be likely to succeed everywhere, but intending planters may, with advantage, refer to pages 112 and 140 of the present volume of The Garden, in which the kinds of fruit trees best adapted to different localities are named by various correspondents. I append a list of several new, or comparatively little known kinds, that have come under my own observation, and are, in all respects, excellent. Apples—Lord Suffield, Small's Admirable, and Nelson's Glory. Pears—Madame Treyve, Beurré de l'Assomption, Brockworth Park, Pitmaston (or Williams), Duchesse d'Angoulême, Durandeau, and Maréchal de la Cour. Peaches—Early Louise, Large Early Mignonne, Alexander Noblesse, Raymacker's, Princess of Wales, and Lord and Lady Palmerston (the latter a yellow-fleshed Peach, and a great improvement on the Salway, but ripening about the same time.) Nectarines—Rivers's White, Rivers's Orange, and Pine-apple. Apricots—Early Moorpark, and Large Early Montgamet. Cherries — Governor Wood, Early Black Bigarreau, and Nouvelle Royale. Plums—Early Rivers's, Transparent Gage, and Belgian Purple. Of Currants and Raspberries there are but few varieties to select from. The best varieties of Strawberries have been named in former calendars.—W. Wildsmith, *Heckfield*.

Forcing Fruit and Vegetables.

Peaches and Nectarines in late houses should be encouraged to ripen their wood. Lifting, partly or altogether, as advised for early trees, may be necessary. Let no young growth remain; cut them or rub them off to the bearing shoots which were formed in the early part of the season. Now is a good time to prune early fruiting trees; but, if proper attention was given during the summer months to thinning and stopping the shoots, little remains to be done. Where there is much old wood the stems may be covered with bearing wood, and trained so that the whole tree may appear to advantage in the fruiting season. Painting the trees with some mixture has not many advantages, but where scale or red spider have been at work, a coating of tobacco powder, sulphur, and soft soap may do good service. Thorough washing beforehand, and rubbing every crevice with a brush, is of much importance. Let no trees become dry at the root, as this is often the real cause of red spider, fruit dropping, and disease. Assist old trees by top-dressing with manure, but carefully remove all inert soil from the surface of the roots before a new dressing is given. Figs for forcing, being at rest, must not be allowed to become too dry at their roots, or weakly growth and small fruit will be the result. If scale has infested the wood or leaves during the past season, let a good washing with soft soap mixed in warm water be given, and the surface soil should be then removed. Late crops ripening will be greatly improved with fire heat. Get the superfluous useless wood upon the tree thinned out; clean stems with well ripened shoots 6 inches long, will produce large fruit, and quantity is always certain. Good growing kinds of the Castle Kennedy and Brunswick type may require lifting, or some of the roots growing far from the surface cutting away. Cucumbers for winter supply may be stopped at each joint; but few fruits should be allowed to grow at one time till the plants are strong and established. A genial growing atmosphere should always be maintained as stagnant air is ruinous to the plants; give a little air every day at the top ventilators where the house is closely glazed. Too much moisture at their roots, when growth is slow, would soon bring the plants to ruin; let water reach the lowest roots when applied, and a night temperature of about 70° is high enough. French Beans planted out in pits or frames, will now require air, which must be carefully admitted. Let a healthy atmosphere be maintained; damp and cold are alike to be avoided, but where fire heat is applied an atmosphere and temperature suitable for Cucumbers will answer well. Dryness at the root will soon bring red spider, but water must be given carefully, especially when the weather is sunless and damp. Get a number of pots filled three parts full of turfy loam and some leaf soil mixed, on good drainage; place five or seven Beans on the surface; cover with an inch of light soil, and place the pots in heat, any position will suit till they come up; when they must be kept unshaded and near the glass. As they grow, add soil and stake them, if necessary, but do not allow cold and wet soil to be placed round the tender stems. From fifty to eighty pots are enough for a moderate supply, and a succession may be brought forward every two or three weeks. Keep Mushroom-houses moist, and at a temperature from 55° to 60°. Place Chicory in a dark atmosphere, or cover it with boxes to blanch it; trim off all green leaves first. Keep Lettuce under glass free from slugs, and give plenty of air. Sow Radishes under glass, and keep the frames closed till the plants are up; then air freely.—M. Temple.

Trees and Shrubs.

Wherever Fir plantations are thick and crowded they should now be thinned—an operation too often neglected and put off from time to time until the trees are permanently injured. The sickly and diseased state of many old Fir plantations may be traced to bad management and the want of judicious thinning in their early stages of growth, when light and air are essential to healthy development. Now that underwood has stopped growing the trimming of shooting tracks and wood rides must be proceeded with without delay. Conifers and other ornamental evergreen trees and shrubs may still be planted out, and, if the ground be properly prepared, and the plants well rooted and carefully planted, success will be almost certain. The annual trimming of hedges may now be commenced; encourage a thick and broad growth at bottom, and a narrow wedge-like top. Clear ground and make banks, where required, for the planting of new Quick-hedges. Prepare for forest planting by clearing and levelling the ground; any fencing that may be necessary should also now receive attention. If the stock of charcoal required for home use is not already burnt, no time should now be lost in getting it done. Cut Ivy off trees and grub out its roots. Nursery work will consist in propagating shrubs by means of layers and cuttings. —George Berry, *Longleat*.

What is an Inch of Rain?—An English acre consists of 6,272,640 square inches; and an inch deep of rain on an acre yields 6,272,640 cubic inches of water, which at 277·274 cubic inches to the gallon makes 22·622 5 gallons; and, as a gallon of distilled water weighs 10lbs., the rainfall on an acre is 226,225 lbs. avoirdupois; as 2,240 lbs. are a ton, an inch deep of rain weighs 100·993 tons, or nearly 101 tons per acre. For every 100th of an inch a ton of water falls per acre.

THE KITCHEN GARDEN.

THE COMMON LENTIL.

(ERVUM LENS.)

The genus Ervum contains about twenty species of weak-stemmed annuals, with pinnate leaves generally terminating in tendrils. E. Lens grows about a foot and a half high, and has a weak branching stem, leaves composed of from eight to twelve oblong leaflets, and pale blue flowers borne in twos or threes. The pods are nearly as broad as long, smooth, and contain one or two seeds. The Lentil was probably one of the first plants brought under cultivation by mankind for the purpose of affording food, and at the present day Lentils are still extensively cultivated throughout most parts of the East, including Egypt, Nubia, Syria, India, &c.; and likewise in most of the countries of central and southern Europe, but not to any extent in England. There are several different kinds, the most common being the French and Egyptian. The former is of an ash-grey colour, large and very flat, resembling a lens in shape, in fact, the lens derives its name from the resemblance it bears to the Lentil seed; while the latter is much smaller and rounder, with a dark skin, and of an orange-red colour inside. On the Continent, and also in India and other eastern countries, Lentils are largely employed as an article of human food, but in this country their use is not so general, although considerable quantities are annually imported. Many years ago the imports into the United Kingdom amounted to 131,892 bushels, valued at £26,379, or 4s. per bushel, nearly the whole of which came from Egypt. Their principal use with us is for the preparation of the so-called invalids' food, which, under the names Ervalenta and Revalenta, has attained no little celebrity. These articles are nothing more than Lentil meal, sweetened with sugar or flavoured with salt. As an article of food Lentils rank first among the pulses, containing three per cent more flesh-forming or nutritive matter than the common Pea, but like many other eatable leguminous seeds, they are very indigestable when not freed from the outer skin. The Lentil is easily cultivated in England, and is worthy of attention, as being capable of yielding a supply of wholesome food. Half-a-pint of seed drilled in rows a foot apart, would not badly occupy a portion of cottager's gardens, and the seeds, ground into meal, would make a pottage which would be of great value to the family. A kind of Lentil with yellow seeds is a favourite food with the Chinese, and may be seen now in shops which sell Chinese products.

The Lentil (Ervum lens).

THE QUALITY OF POTATOES.

The conflicting accounts which are constantly published of the merits of various kinds of Potatoes must often prove puzzling to those who forget that Potatoes depend very materially for their qualities upon the nature of the soil in which they are grown. It may be said of many kinds that, whilst in some parts they are of the best quality, in other places they are close and flavourless. A knowledge of this has made me very chary of giving an adverse opinion of any tolerably good kind; but there are some of which it would be impossible to say that they were good anywhere. There are kinds that have been, as it were, forced into the market by various methods, but, having universally proved to be inferior in quality, are quietly falling out of cultivation. Some of the most recently introduced American kinds ought never to have been heard of. Eureka, for instance, a variety that is as coarse and deep-eyed as the Bovinia, is literally a disgrace to any garden. Alpha also, although early and of fair quality, has no constitution, and not a good sample of it has been seen this season. As a first early it is, in the matter of bulk and quality, considerably behind our best kinds. This is not merely my own opinion, but the result of enquiries made from growers in all parts of the country. On the other hand, Snowflake, as was evidenced at the recent show at the Alexandra Palace, is the most popular of all the American kinds, and bids fair to become a standard variety. Mr. Taylor (p. 281) evidently has a poor opinion of Bountiful. If he had seen the remarkably beautiful samples of this very handsome red kidney so freely staged at the show he would then have admitted that it had some merit. To show that it has constitution it is enough to say that the finest samples staged and the premier dish of coloured kidneys in the show were in Mr. Donaldson's collection, and were grown as far north as Inverary. One of the best samples of a white round Potato was a dish of Onwards—in fact, this Potato, of which I thought poorly a few years since, has this year developed fine form, and produced a large crop. So much for the variable results obtained in the culture of Potatoes. A. Dean.

Select Field and Garden Potatoes.—Will some of your readers, who know Potatoes well, kindly favour me with the names of, say, six sterling sorts for field culture? The multitude of varieties now before the public makes selection to the uninitiated most difficult.—S. [For field culture I would recommend either Mona's Pride or Hammersmith Kidney, Snowflake, Early Dimmick, Dawe's Matchless Kidney, Regent, and Victoria, all white kinds and good market Potatoes. If I were asked for a selection of six first-class varieties for the garden, and which would be equally prolific in high class field culture, I would give Royal Ashtop, Early Market (round), Rector of Woodstock, Blanchard (round), Waterloo and Lapstone, kidneys. Blanchard is a handsome kind, tipped with purple, and of excellent table quality.—A. D.]

Remedy for Slugs.—If your correspondent will procure a supply of fresh bran and a little quick lime, moderate attention to the following simple rule will soon complete the destruction of his enemies. On a fine mild evening a boy should be sent over the quarters and round the paths to deposit the bran in small quantities of not more than a dessert spoonful, in heaps at intervals of 3 or 4 feet. The night being favourable two or three hours will suffice for the slugs to find their way to the traps, when a second visit should be paid, this time with the lime, which may be sprinkled or dredged over the heaps of bran, and the work is complete. Where slugs and snails are numerous, and the ground is full of eggs, the quarters must be gone over several times, always choosing dry mild nights for laying down the bran.—W. Coleman, *Eastnor Castle, Ledbury.*

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

Dean's Snowball Cauliflower.—Further experience with this convinces me that it is the earliest and best of all Cauliflowers with which I am acquainted.—R. Gilbert, *Burghley.*

Tomatoes v. Wasps.—Not only have we had wasps in our Vinery, in which Tomatoes have been grown all through the fruiting season, but they have also been very numerous in a house in which there has been little else besides Tomatoes and Cucumbers. We have, therefore come to the conclusion that Tomatoes will not keep off wasps. If they did, their growth would prove more economical to those who grow fruit extensively than having to fasten frigi domo or some similar material over the open ventilators, in order to prevent the wasps from entering the house.—Le Grange.

—— I have two Vineries, separated only by a glass partition, both being ventilated alike. In one of these Tomatoes were grown against the back wall, and the Grapes in this house were perfectly free from the ravages of wasps; while the one in which no Tomatoes were grown suffered severely. The Vines in both houses were very nearly of the same kinds, and no obvious reason existed why the wasps should attack the fruit in one house and not in the other, except the fact that Tomatoes were grown in the one and not in the other.—John Brian, *Woodstown, Waterford.*

THE PEACH.

The Peach is supposed to be of Persian origin; that it came from western Asia is at least pretty certain, the dry and temperate climate of some parts of that region being highly favourable to its development. It found its way into Europe by the same route as the Vine, and seems to have been gradually distributed by the same means, though at a much later period, its introduction into Italy not dating much earlier than the Christian era. Its successful culture in the north of France and in England is of comparatively modern date; but it is in these two countries that the greatest improvement has been effected in its culture and in the production of new varieties, as the names of most of those cultivated indicate. At one time the Peaches grown in Italy, upon standard trees, were considered the best in Europe; but probably the finest samples to be found anywhere now are those produced by the painstaking and methodical Peach cultivators in the neighbourhood of Paris, in many cases under glass in this country, and less frequently out of doors, against walls. Still, though it is an undisputed fact that the Peach will ripen its fruit successfully almost anywhere in England, and in many parts of Ireland or Scotland, on walls having a southern exposure, its culture has never assumed the importance that might be expected, seeing that as a wholesome dessert fruit of delicious flavour and highly ornamental appearence it ranks second to none. Were any confirmation of this fact needed, it is the price that Peaches bring in our markets, even when they are most plentiful. The Peach cannot boast of a literature like the Vine, otherwise it would probably have been more popular, and its culture better understood. That it might be cultivated more successfully, and with much less trouble and expense than the Vine, by many who attempt the culture of the latter under glass, is, however, a fact that has been confirmed often enough. The Peach is a fast growing tree, covering in a few years a great expanse of wall surface, and bearing proportionately. A tree of sufficient size to cover a cottage front or gable, say 20 feet square, will, with moderate cropping, yield thirty or forty dozen Peaches annually, worth from 5s. to 8s. per dozen. Thirty years ago or more according to the "Transactions of the Horticultural Society," there was a Peach tree at Yoxfield, in Suffolk, which covered about 600 square feet of trellis, and bore annually from sixty to seventy dozen Peaches. This was under an unheated glass case; but we have seen in recent years, on the open wall in the south of Scotland, a tree that covered between 300 and 400 feet of space, and bore annually a proportionate quantity of fruit. Under glass a healthy-growing Peach tree will cover the above space, or more, in ten years. These facts show what can be accomplished under ordinarily fair culture. The Peach is really one of the most prolific fruit trees we have, flowering as it does in great profusion annually, and often setting 50 or 100 per cent. more fruit than the tree can possibly bring to maturity, success in this country being almost entirely a question of protection from spring frosts. The Nectarine, which demands the same treatment as the Peach, is simply a variety of the latter.

Open-air Culture.

The Peach will ripen its fruit on an east or west aspect in the south of England, if the situation is not too high and is otherwise favourable; but a south aspect should be chosen whenever it is available, in order that the trees may receive the sun's rays when they are most powerful, and for as long a period as possible every day. It is desirable that annual shoots of the Peach should be thoroughly matured to their extremities before the winter frosts set in, in order that good-sized trees and good crops of fruit may be obtained as early as possible; but this, it is found, can rarely be accomplished, even on a south wall and in the most favourable localities, which shows that, even with such advantages, our climate is not warm enough to mature the wood of the Peach perfectly. This, however, is only a drawback in so far as it prevents as rapid an extension of the tree as could otherwise be effected; the unripe portions of the shoots having to be removed annually at pruning time. When it is stated that the mature portion of the shoots often does not exceed 6 inches in late localities, and seldom attains the length of 15 inches—9 to 12 inches being about the average—on shoots that have perhaps grown 20 inches or 2 feet altogether, it will be seen how very important it is that the trees should have a favourable aspect. The height of the wall is the next consideration; 12 feet is a common height, to which an 11-inch deal coping affords considerable protection from frost, while under an 18 inch modern glass coping the trees would be comfortably safe. Under a free system of training, however, a 12 feet wall is too low for the Peach, as the branches would reach the top in a few years, after which they would require to be kept within bounds by the knife and frequent root pruning, which is not desirable. Besides, "rider" trees, which should always be planted between the permanent ones to fill up the space till the latter overtake them, are almost inadmissible on low walls, for they reach the top directly. From 15 feet to 18 feet is a good height, and if protection has to be afforded by a coping alone it will require to be 3 feet wide, and to be of glass; otherwise the usual 11-inch deal would do, if sheets or netting also were provided for letting down on frosty nights in the ordinary way. Protection by the aid of heated walls may also be resorted to in a systematic way, with the most certain results, but this is optional. Walls are now being generally wired for the more convenient training of the trees. Our own experience is that Peach trees trained to galvanised wire are very often injured in winter, the shoots being killed where they come in contact with the wire, and sometimes gumming badly. Painting the wires is said to lessen these evils considerably, and probably well-ripened wood would not be so susceptible of injury; but many have a strong objection to the wires for these reasons, and also because the fruit takes longer to ripen, the shoots being removed from the wall about 2 inches, thereby receiving less of its heat. It may be safely stated, that, excepting in the matter of appearance, and in saving of time in tying, the wiring system possesses no advantages over the old plan of nailing the branches to the walls. Leaving the construction of the wall and other such matters to the builder, we now come to the

The Peach Border.

The most prolific trees we remember to have seen grew in a border of natural soil of rather strong texture, to which turf had never been added, and which was not more than 15 inches deep at the most, the sub-soil being dry and stony. The soil was never stirred, and the men walked over it at all seasons of the year, until it became so hard that it would have bent a spade in attempting to move the crust. In such a rooting medium the trees throve and bore excellent fruit in a very late district. As might be expected, a soil so hard and so shallow became heated to a high temperature in spring and summer, being, indeed, sometimes very little cooler than the wall itself. For digging or forking in the usual way, mulching was substituted in dry weather, and with better results. Borders composed of fibrous turf have been often recommended for the Peach, and we have seen trees grow at an astonishing pace in such composts, attaining an unusually large size in a very few years, when the branches had room and were allowed to extend themselves as fast as the wood, laying in sub-laterals at the same time; but this was under glass, where the wood could be ripened with the assistance of fire heat if necessary. Such rank growth made in the open air, however, is not likely to be matured successfully, and it is not advisable to encourage it. Trustworthy experience has proved that hard soils of moderate richness produce shorter but much firmer shoots that ripen more readily, and these should be secured, if possible, on the open wall. Borders deeper than 18 inches are therefore not to be recommended, nor rich composts either. Any ordinary garden soil, of which the staple is a sound loam, will produce healthy trees and good crops. If it is very poor, then chopped loam, if it can be procured, is a good addition, also ground bones in moderate quantity, or well-rotted manure either from the stable or cow house; but it is seldom these ingredients are required at first, for young trees will grow fast enough in garden soil of ordinary quality that has been newly turned over, if it has not been exhausted by fruit trees previously. It is easy to apply stimulants later, when the trees require it. In preparing the border, the sub-soil should be first examined, and if that is found to be wet and soft it must be thoroughly drained, and the bottom of the border should be rammed as hard as possible; or, if necessary, concreted with rubble and lime run on 4 inches thick, and allowed to set before putting in the soil. Good drainage and hard ramming is, however, generally sufficient. The width of the border depends upon the height of the wall; but for a wall 15 feet high it should be a least 14 feet wide, and it can be made by annual additions. One advantage of hard borders is that the roots do not travel so far, but ramify more, eating their way forward more regularly than they do in loose rich borders, which they will traverse from side to side in less than two years, making strong succulent roots that produce branches of correspondingly gross proportions. We do not, however, recommend the border to be made hard at the beginning—that is artificially, by treading or otherwise; on the contrary, of whatever materials it is formed, it should be turned over regularly before planting the trees, and while the soil is in a workable condition, and not wet; it should then be left to settle naturally, which it will do by the end of the first season.

Young Trees and Planting.

Private growers seldom or never propagate their own trees now-a-days, for the simple reason that they can buy a better and cheaper article from the nurserymen, some of whom devote special attention to the propagation and grafting of fruit trees. We shall, therefore, dismiss the subject of propagation, and, offer instead some hints on the subject of buying Peach trees for planting; as, upon the choice of good plants to begin with, much depends. A very general impression exists in favour of trying plants from the nearest nursery, in the belief that, if your locality is a cold one, for instance, the trees will be hardier and better adapted for the purpose—acclimatised in fact. This, however, is a very fallacious notion as far as tender fruit trees are concerned. Whatever the climate may be like—but more especially if it is cold and late—it is important that the trees should have their wood well matured before they are taken up in autumn. Experienced cultivators know this, and generally order their plants either from a nursery where the trees have been grown against a south wall, or from a town nursery in the south, where the climate is warm and dry, knowing that well-ripened wood only is capable of withstanding the alternate frosts and thaws of our winters, no matter where the trees were grown before. In not a few nurseries they are bought in as maidens and planted in the open ground, the shoots being tied to stakes to preserve the fan-shape of the trees. Those plants that are not disposed of to customers at the planting season, are pruned back to the bole again in winter, and this operation is sometimes repeated year after year till the plants are sold, the tradesman's object not being to grow the trees, but to keep them at a saleable size. Now, there are very few places in this country where good trees can be raised in this way, for the reason that they will not ripen the wood perfectly in the open ground, though they make shoots that appear to be strong enough, but which are green and soft, and the cutting-back process which the trees may probably have been subjected to in previous years, often lays the foundation of a gummy constitution. With these evils before him, the buyer will therefore be careful to secure, first, trees that are not above two or three years old, unless he wants them partially grown to begin with; secondly, to have them sent home unpruned and with good roots; and thirdly, only to select trees that are grafted on the Plum stock, and such as have clean straight and smooth stems. Peach trees may be planted any time between October and February with a tolerable certainty of the trees growing, provided that the work is not done in frosty weather; but by far the best time to plant is just when the trees begin to shed their leaves, which is generally in October or November. At this period there is still sufficient heat in the ground to excite root action, and the trees get partially established before winter sets in, and are consequently better able to withstand the frosts, which are sometimes severe enough to injure Peach shoots seriously; they are therefore in a much better condition for starting into growth in spring. Besides, if the trees have reached a bearing age, autumn planting is not likely to spoil the chance of a crop the following season, whereas such can hardly be expected if planting is deferred till spring. The distance apart at which the permanent dwarf trees should be placed, depends upon the climate. If it is favourable—warm enough, we shall say, to mature 9 inches or 1 foot of the young shoots every year—then the trees should not be less than 20 feet asunder; if, on the other hand, not more than 6 or 7 inches of well-ripened young wood can be laid in annually, on an average, 14 or 15 feet will be sufficient. Between the dwarfs, "riders" should be planted, and, if the wall is not more than 12 feet high, these should have stems about 4 feet in height; but for walls 18 or 20 feet high, 6 feet riders will be required. it is seldom trees are worked higher than this. Choosing, if possible, moist open weather for planting, let the holes be taken out against the wall at their respective distances, of width sufficient to admit of the roots being spread evenly out in straight radiating lines, from the stem, and of the depth of 9 inches. In planting, place the tree in an easy position against the wall, but not too close to it at the bottom; secure it temporarily, and cover in the roots, taking care not to throw the soil against them, as the novice is sure to do, but to scatter it over them in the direction in which they grow. It is an excellent plan to mulch newly-planted trees with decayed leaves or litter, and some kind of pathway should be provided to avoid treading on the border, until such time, at least, as the soil has settled of its own accord, and the trees have made a decided movement at their roots. For a path there is nothing better, or more readily procurable than broad stout planks about 3 inches thick.

Pruning and Training.

These operations will be best understood by a description of the treatment for one year, beginning with young and newly-planted trees, such as we have just been dealing with. There are several fanciful modes of training, but the fan system is the best for the Peach, and the one most universally adopted, as presenting the greatest facilities for covering a wall quickly, and distributing the vigour of the tree equally—a matter of much importance in the culture of stone fruits, which are apt to lose their branches or grow very unequally when trained on the horizontal plan, or in any shape which does not give all the branches an equal chance as regards the upward flow of the sap. Beginning, therefore, with a newly-planted young tree, which, we shall suppose, has been chosen with from four to six equally-placed, and, if it is possible, equally vigorous young shoots upon it, the first operation consists in cutting these back, with a sharp knife, as far as the wood is soft and unripe, taking care, at the same time, to cut above a leaf bud, which may be easily distinguished from a fruit bud by its less round and more pointed shape, and the position it occupies between the fruit buds, when these are present, which is not often the case on young trees that have only one year's shoots upon them, the leaf buds being generally plentiful, and singly and regularly placed along the shoots. The shoots should also be left as nearly of the same length as possible, to ensure balance, and, in nailing them to the wall, arrange them at equal distances apart, in fan form, keeping the bottom shoots on both sides a few degrees above the horizontal line, and leaving an open space in the centre of the tree. On no account must there be a central shoot going straight up, for it will rot the others, and be a source of trouble ever afterwards. For this reason, when the tree happens to have, say, five shoots instead of four or six, the worst placed should be removed, so as to have the same number on each side. This concludes the winter treatment after planting. Further attention begins with spring growth; but before this the shoots must be examined, and any of them that may have died during the winter—as occasionally happens—must be removed, taking care that none of the dead portion is left to cause gumming, and the remaining shoots must be re-arranged in proper order as before. The Peach invariably breaks with great regularity, and in great profusion, so that there is never any difficulty in securing a plentiful supply of young wood. The chief object is to secure the best placed shoots, and only to retain as many as can be laid in without crowding in the least. No greater mistake is ever made in Peach culture than that of training thickly, particularly on the open wall, where everything depends on the amount of heat and light which the trees receive during the summer months, and the beneficial action of which is very much a question of training. The cultivator who makes it a rule never to allow the shoots to overlap or shade each other during the growing season will—other things being equal—always secure the healthiest trees and the heaviest crops of fruit. Keeping these facts in view, the first duty when the buds push in spring is to rub off with the finger and thumb all that come between the branch and the wall and such as push directly in front. A week or ten days later, according to the progress of the shoots, another trimming may take place, and after a similar interval the trees should be gone over the third and last time, removing the whole of the shoots on the under side of each branch, and all of them on the upper side, save the one best situated at the base of the branch, one about the middle, and the one at the point. This, for example, will leave twelve shoots on a tree with four branches, and these will require all the space that can be afforded them; indeed, if the branches, by which term is meant the previous year's shoots, are not more than 9 inches long, two shoots only will be enough to leave, viz., the top and the bottom ones. By midsummer the shoots will be growing freely, and they should be nailed, or tied in, when they have grown about a foot, fastening each by one tie only, 6 or 7 inches from the points, as the tying in somewhat checks their growth. The strongest shoots, and such as are observed to be getting the lead too much, should therefore be laid in first, and later in the season these may also be stopped at their points, and afterwards kept pinched at every joint in order to maintain the balance of vigour among the branches. The shoots nearest the centre of the "fan" generally exhibit the greatest tendency to over-luxuriance, having the most upright position; and some recommend the strongest shoots to be depressed and the weakest to be elevated during the growing season, in addition to pinching, and for the same reason, but the practice is troublesome and unnecessary. If pinching is judiciously performed, and the weaker shoots are encouraged to grow, there should be no difficulty in securing a well-shaped symmetrical tree. All laterals that grow from the sides of the young shoots, whether vigorous or otherwise, must also be persistently pinched at every leaf; for, though they are a great aid in furnishing a tree early with bearing wood, when grown under glass, they seldom or never ripen out of doors, while their timely pinching accelerates the maturity of the main shoots. These and other attentions in the shape of tying or nailing in the shoots as they grow, syringing the trees occasionally in the evening to cleanse the foliage of dust and vermin, and watering their roots copiously if the ground is dry, will be all that are required till the trees shed their leaves in autumn. At this period what is called the winter pruning should be done, in order that the wounds made by the knife may heal before severe frosts set in, otherwise it is better to defer the work till the beginning of February or thereabouts; but it should not be delayed till the buds begin to push, nor should the work be done in frosty weather. Autumn pruning, however, is preferable, and it is generally as convenient a time for the task as any other. There should really be very little pruning to do in winter if dis-budding has been properly performed in spring and summer training has been attended to. Removing the unripe points of the shoots and the spurs formed by the pinching of the laterals should be all that is needed. On purely fan-trained trees devoid of spurs—which they should always be for the sake of method—the fruit is borne on the previous year's wood; consequently, and seeing that fruit may be expected the second year, we do not recommend the removal of a greater portion of the young wood than that which is not ripe, while the fan shape of the tree is preserved as perfect as possible. As young Peach shoots are always more or less green, even when quite ripe, it is rather difficult for the inexperienced operator to tell where to cut when pruning, but, where he cannot have a practical lesson, which is worth many written ones, he may invariably tell the mature from the immature wood by its colour and texture and the plumpness of the buds. Where the latter are fairly developed, and where the shoot feels tolerably woody, he may cut, taking care always to cut above a leaf bud. All the spurs formed on the shoots by the pinching of the laterals should also be cut clean off at the base, leaving the two buds which are generally found on each side of it at that point. The shoots, after pruning, should be tied in permanently in their proper places. If these instructions are carried out in a fairly intelligent manner, a shapely young tree, furnished evenly from base to summit, will be the result, and it will afford an example of what a Peach tree ought to be like at all times. The aim of the cultivator should be, first, to get the summer shoots well ripened, to enable him to lay in a good length of wood annually; secondly, to confine the shoots, if possible, to the upper side of the branches—always retaining the one at the base of the branch to ensure a well-clothed tree; and, thirdly, to preserve symmetry and balance by judiciously dis-budding, training, and pinching the gross shoots, and by carefully pruning and training in winter. It is not possible to train a Peach tree for fruiting purposes by rule and line, as has been directed in some books on fruit culture, and we would dissuade anyone from making the attempt. A tree cannot be formed by cutting and hewing; it must be led, and, as far as possible under the circumstances, be allowed to assume its natural habit. For a year or two at first it is possible to make the branches on each side of the tree match, but when the tree gets older and re-arrangement of the branches becomes necessary this is neither practicable nor disirable. The even outline of the fan can and should be always maintained, but to keep the bottom and centre of the tree well furnished with young bearing wood the shoots must be retained wherever they are found conveniently placed for filling up a gap or covering a bare limb, while at the same time the rules laid down at the outset should be adhered to as much as possible. Unlike the Vine, the Peach pushes freely both on the young and old wood, so that there need never be any difficulty with ordinary foresight in keeping the trees well feathered to the bottom. The old trees at Chatsworth and many other places are examples of this kind; for, though the original limbs near the bottom of the trees are bare enough of themselves, they are kept thatched by a race of younger branches that have pushed at a later date and have been laid in to take their place.

Spur Training.

This system of training has been referred to occasionally within the last few years, and is practised successfully in a few places. It possesses no advantages over the ordinary fan system already described, and from which it differs in no way except in the treatment of the summer shoots, which are pinched regularly, so as to produce spurs, in exactly the same way as the Pear, the spurs to a great extent replacing the successional bearing shoots laid in annually by the ordinary method. The trees are framed on the common fan principle only that nothing but leading shoots, so to speak, are carried forward. These are led off in the usual manner; originating additional shoots as the radius of the branches extend, pinching the extremities of the gross shoots to maintain balance, and generally adhering to the rules laid down for the formation of a fan-shaped tree; but in dis-budding, quite different tactics are adopted. Instead of thinning the buds out by degrees to two or three on the upper side of the previous year's shoots, all the upper and lower buds are rubbed off, and the forerights, or those which project at right angles from the wall are retained, being thinned out at the last dis-budding to 3 or 4 inches apart. What are left are pinched at the second or third leaf, and afterwards kept pinched at every leaf during the summer. At the winter pruning the leading shoots are pruned back when not ripe, and otherwise regulated, and the spurs are cut back to one or two buds, taking care, as in the case of a leading shoot, to cut at a leaf bud. Upon the spurs fruit buds are generally formed freely, and these produce the greater portion of the fruit. Of their treatment during the fruiting year we shall speak in due course. J. S.

(To be continued.)

Cheap Houses.—An Englishman, writing to the "Spectator" from Southern California, says a house here does not cost anything to many people in the summer, for the simple reason that they do not have one; and in the rainy season one can be built that will do very well for £5. I saw a man the other day sitting on a chair at a table eating his dinner under a tree, with a stove on one side and a bedstead on the other, and all the furniture of a house around him, and not a house within five miles, and he looked very jolly. I have heard of houses without fire-places; but I was rather surprised the other day when I came upon a neat fire-place, with a good chimney and everything, and no house. This life agrees very well with my health, and, in spite of hard work, &c., I rapidly increase in weight.

CORRESPONDENCE.

COLOUR NO TEST OF FLAVOUR.

TO THE EDITOR OF "THE GARDEN."

Sir,—I am convinced that colour is in many cases no test of flavour, even in the same variety of fruit; and that it is not so in the case of fruits and vegetables generally, is, I believe, a fact that will ultimately be acknowledged by every one who takes the trouble to investigate the matter. Take Figs, for example, or Melons, and we find by experiment that the best green and dark purple Figs, or green-fleshed and scarlet-fleshed Melons are very equally matched in flavour; but the very finest varieties of either Figs or Melons in each section will not acquire their full flavour if the atmosphere is moist for a day or two just as they finish ripening. Figs, especially, are wonderfully sensitive. In this way, indeed, a day's rain will spoil the flavour of those that are ripe on the tree, even if under the glass; and from this I infer that flavour depends most on the supply of moisture in the air and at the root, but especially upon the dryness or humidity of the atmosphere, since part of the process of ripening consists in the evaporation of water from the fruits, thus leaving the essential secretions, such as sugar, gum, acid, &c., and, in many cases the aroma, or essential oil, in a more condensed state. Colour, on the other hand, depends less on moisture, being principally influenced by light, as is well illustrated when we blanch Seakale, Lettuce, or Endive, by depriving them of light, a proceeding which influences their colour far more than their flavour; while the gills of Mushrooms grown in a dark cellar are not as well-coloured as those grown in the open air, yet they are quite equal in flavour. Even light does not influence colour so much as is generally supposed, for many Apples and Pears, if gathered when fully grown, and stored in a dark place, will colour even better than if left on the trees; and many Pears which are mealy and comparatively tasteless if left to ripen in the sun, become quite juicy and rich if stored in a dark room, or placed in drawers. I have tasted Red Hamburghs, which have been perfectly delicious, and black ones which have been almost as sour as Crabs. The imported Hamburgh Grapes now being brought into Covent Garden Market, are large-berried bunches, remarkably well coloured, jet black, with a heavy bloom, but they are the sourest Grapes I ever tasted. I always look on flavour as the primary test of all fruits that are to be eaten; yet, if the flavour is good, by all means let us have as many additional attractions as possible. It is somewhat singular to observe how little colour adds to the flavour of dessert fruits generally, and how little it appears to be appreciated when the palate, instead of the eye, is to be pleased. Are not the skins of the finest and best-coloured Grapes, Peaches, Nectarines, Apples, and Pears, removed ere the fruit is eaten, by at least 70 per cent. of those who regularly and intelligently eat fruit as part of their daily meals at all times, and not merely at dessert, after the stomach is loaded with heavier food? At any rate, I advise those who think they like the flavour of the colouring matter in Hamburghs and other black Grapes, to carefully remove the skins from a few berries and taste them without the greenish pulp, for it is singular to find that in most black Grapes the skin is the only part which contains the colouring matter, and there are many persons who prefer the pulp only, and take good care not to eat the skins. Most acid cider Apples are, as every one knows, most beautifully coloured, but they will not bear comparison with Wyken or Newtown Pippin for flavour, and out of a hundred dessert Plums of every shade of red and purple we have none to surpass the old Greengage. Some green Gooseberries are as sweet as even the Red Warrington, and it is not a little remarkable to find that while the Louise Bonne of Jersey Pear is green when grafted on the Pear or free stock it becomes bright red on the sunny side if worked on the Quince in the same soil and aspect, the flavour in both cases being precisely the same, although, in some instances, it is known that grafting improves fruits in flavour, just as it causes them to become deteriorated in others. Looking at the subject in a wide sense, flavour is not dependent on colour since the hybridiser frequently produces varieties of equal excellence in that respect from the seeds off the same tree, which are very variable in colour. We know a little about the action of light and its influence on the colours of vegetables, more especially on green leaves, but the wisest cannot account for the wide divergence in size, flavour, colour, habit of growth, or time of ripening, which is apparent in fruits raised from seeds of the same variety and grown under precisely the same cultural conditions.

B.

Sir,—When Mr. Fish appeared as the champion of green Muscats, red Grapes, and pale-faced Peaches, his motto was "colour no test of maturity," and there were signs that he meant to abide by it, but a shot or two from Mr. Sheppard and myself, have apparently suggested a change of tactics, for now his motto is "colour no test of quality." He now asks us to compare a British Queen Strawberry with a Black Prince, a Bicton Pine with a Sir Harry, and so on with other fruits, utterly ignoring his former remarks, which distinctly conveyed quite another meaning; for did he not compare Golden Muscats with green ones, and red Grapes with black, and did he not tell us that his worst coloured Apricots were best tasted, that the White Frontignan was "best and highest flavoured when greenest," and that the palest Noblesse Peach was "often the most exquisitely flavoured?" Further, did not my distinct intimation to that effect, and Mr. Sheppard's remarks show that we both believed that to be his meaning? Yet he goes on to tell us, that his object is simply to "check assertion and invite facts." It would not be out of place to hint, at the same time, that those who have any facts to give should state them fairly and unequivocally, and afterwards adhere to them. If Mr. Fish's argument is simply to the effect that colour is no test of the comparative excellence of different varieties of fruit, he might have said so in as many words, and would have been stating a fact which everybody knew, and nobody ever disputed; but when he tells us that green, and consequently unripe Muscats, and pasty-coloured Apricots, are the best flavoured, he states a very different thing; but, as to whether he means the one or the other, or confounds both together, we are at present in the dark. Mr. Fish says I obviously confound imperfect maturity with want of colour, because I asked if half-coloured Strawberries were the best flavoured, or green Gooseberries the sweetest? This is his way of "putting it." These questions I maintain were apt, and to the point with one who declared that colour was no test of maturity. But it wearies one continually keeping an opponent to the real point at issue. I care not for hard blows, and I like to grapple at close quarters, but it becomes rather tiresome when you have to hold your opponent up with one hand and fight him with the other.

Wortley. J. Simpson.

Sir,—In my remarks as to colour being a sure indication of flavour, I distinctly stated that I meant them to apply to each particular variety, whereas Mr. Fish has made it appear that, in contending for the colour test as a criterion of quality and high flavour, I had, if my words meant anything, stated that Sloe and Damsons ought to contain a large amount of saccharine matter, and to be the richest of Plums on account of their high colour. What I stated was, that colour is the finishing mark that characterises each particular variety; and the statement that white Nectarines, Noblesse, Sulhampstead, Lord Palmerston, and similar skinned Peaches, or Chasselas Musqué, Frontignan, Muscats, and other light-coloured Grapes have high flavour, in no way weakens the assertion which I made, but only helps to confirm it. The above are all high-class fruits, but surely Mr. Fish will not have us believe that the palest and worst coloured among them are ever the best flavoured. The thing is altogether unnatural and impossible, as solar heat and light impart both colour and flavour; and it stands to reason that the more colour there is in the white Nectarines, Muscats, or palest of Peaches, so in proportion are the richness and fulness of their flavour. Even in the case of the Sloe and the Damson, I fearlessly assert the same holds good, that is, the higher coloured the fruit is the better the quality, and so of each fruit of its respective kind. It is a well-known fact, that when Grapes refuse to put on their natural colour, be it either black or golden, something is radically wrong somewhere. Red Hamburghs and green Muscats generally occur through defective root action or too heavy cropping, and whichever conduces to the result prevents their acquiring their proper flavour. Whoever heard of red Hamburghs or green Muscats keeping; and if, as is well known, they will not do so, what is the reason? Is it not because the crude juices are not converted into saccharine matter? Unfortunately, the gentlemen who could bear testimony to the excellence of red Hamburghs and green Muscats are not available as evidence; but we have plenty of men, who ought to be equally good judges, who can bear testimony as to the worthlessness of such, compared with others having their natural and proper colour. No Grape grower would expect to find red fruit of Alicante, Lady Downes, West's St. Peter's, or any other late Grapes, that should finish with a jet black or bluish-black bloom, at all eatable. How, then, can red Hamburghs, or green Muscats, or any fruit, lacking their natural colour, possess the proper richness of flavour peculiar to the particular variety? Mr. Fish states that is impossible to condemn colour, judging more strongly than I do in my own words, on account of my admission that "Grapes improve by keeping, although black ones may lose a little of the lustre of their rich black bloom; and that, therefore, my award would be to the blackest Grapes not so improved by keeping." Most certainly it would, if they had size of berry, fair ripeness, and density of bloom, as opposed to those that had only gained a little in saccharine matter by the loss of size, colour, plumpness, and general finish. The improvement noticeable in Grapes when kept must be accounted for by the fact that they lose some of their watery particles, and the flesh becomes more solid and sweet; but if sweetness alone is to be considered, in judging the merits of fruit, then the more perfectly ripe they may have become, the more certain would be their chance of receiving an award. There is with Grapes, as with all fruit, a certain stage of ripeness that is loooked upon as sufficient to fit them both for exhibition purposes and for use, and beyond which they are not generally presented; otherwise, excessive ripeness, amounting to complete shrivelling would be the standard, if we are to expect sweetness alone. J. Sheppard.

Wolverstone Park.

Sir,—Whilst Mr. Fish suggests that colour is sometimes laid on fruit at the expense of quality, the observation and experience of most cultivators will lead them to an entirely different conclusion. They will readily grant that colour alone (in Grapes) is no real test of quality and maturity; but the fact is that colouring of Grapes is simply a progressive process in the maturing of the fruit, not maturity itself. I need hardly observe that some varieties are naturally of a deeper tint than others, and, to the eye, assume all the appearance of perfected fruit before they are really matured. In asserting this Mr. Fish will be borne out by the obervations of many others, and to judge such fruit by the eye alone would, in many cases, be giving a preference to appearance over the higher essentials of maturity and flavour. Now, with regard to white and amber-coloured Grapes, Mr. Fish, in speaking of the White Frontignan Grape, says—"When it passes into a shade of amber the delicacy of the bouquet is gone." This raises the question whether colour is not only a test of quality, but, whether it is not also, to some extent, opposed to it. Nothing, however, is proved beyond the fact that Grapes of this description, with a rich aromatic flavour, after reaching their full maturity begin to deteriorate, and assume a different appearance, more or less rapidly, according to surrounding circumstances. But, laying differences in point of flavour aside, there is a certain and unmistakeable sign of maturity imprinted upon fruits, so clear and legible, that he who runs may read, although in our uncertain and variable climate these indications may assume a different appearance under different climatical or local conditions. Fruits ripened in the sun or ripened in the shade is a subject that has been overlooked in this discussion.

J. Thomson.

EXHIBITIONS AND THEIR RESULTS.

It is a discouraging, but nevertheless a notorious fact, that many employers object to their gardeners taking part in horticultural competitions, on the ground that it leads them to devote their time and energies more exclusively to the production of special plants or fruits than to the general care of the gardens under their charge and of the various subjects that they may contain. Doubtless there may have been instances where this has been the case, but they are few and far between at the present day, and it is an established fact that the choicest specimens of all kinds that are to be found on the tables of the exhibition tents come, in most cases, from private gardens, where every department is in the highest order, and where the grounds generally are models of taste, as regards both their keeping and the selection of the trees and shrubs which adorn them. It will be admitted that an ambition to excel in his profession is as laudable in the case of gardeners as in that of other men, and it will be also admitted that the desire to have their skill acknowledged by the public and the judges is a perfectly natural feeling. Many men, in order to gain this object, and without a thought of the monetary prize that may possibly fall to their lot, over-tax their strength and energies in their care and devotion to the subjects committed to their charge, and, as the culture must necessarily be of a high order if a prize is to be obtained, I think that such men deserve to be encouraged by their employers, not only with means to carry out efficiently the various operations connected with the garden, but by enabling them to visit some of our Metropolitan and other great horticultural gatherings, which take place in different parts of the country. In the end, the employers would be the gainers. Any observant person who happened to be present at the recent fruit and flower show at Edinburgh, during the hours of admission for gardeners alone, could not have failed to notice the interest evinced by every practical man present. I will venture to affirm that every man out of the thirteen or fourteen hundred that visited the show referred to, during the two days that it was open, went back to his home with a determination to achieve greater results than hitherto. Many a young man that I observed gazing upon the fruit-laden tables no doubt longed for an opportunity to try his skill against the men whose names were associated with them. From this point of view, therefore, it would be difficult to over-estimate the value of the great national horticultural exhibitions throughout the country. Local flower shows are well in their place, and ought to be encouraged; but there men can only measure their strength with their neighbours. In great gatherings like that held in Edinburgh, we have, however, not only an opportunity of seeing the productions of the best practical men throughout the kingdom, but many of the most rare and recent importations of the leading nurserymen, many of whose establishments far exceed any private place in extent of glass and the number and rarity of their plants. In estimating the results that flow from great national horticultural shows, we have only to look at the tables and flower stands seen in the exhibition tents and halls in our provincial towns. Here the stimulus given to horticulture by the first International show, held in London in 1866, can be traced in many productions that are seen upon show tables now. Up to that time, many a provincial gardener never had seen a pot Rose grown to perfection, and the sight of the magnificent collections staged on that occasion sent many a man home, not only to try his hand at Rose culture in pots, but to produce plants equal, if not superior, to those he had seen. In several other branches of our profession a new era began from that date, and judging from this, I am led to anticipate still greater things in the future. Greater facility in travelling has done much to advance horticulture all over the world. A few years ago, it would have been practically impossible to have brought together a collection of rare plants from distant places, whilst at the present day a vast network of railways renders this a matter of the greatest ease. There is one thing that might advantageously become a feature in our great national horticultural exhibitions, viz., a public gathering of practical gardeners, when they could have the pleasure and profit of listening to short addresses from some of the most esteemed and practical men in the profession. In connection with the first great International show held in London there were addresses given by the leading botanists and other eminent men; but, in many cases, the meetings were thinly attended, the fact being that some of the subjects chosen were not interesting to gardeners in general, and some of the addresses were given by foreigners in their own language. Many would, however, be glad to meet face to face men of whom we read and hear so much in connection with horticulture in all its practical details. There is no class of working men more isolated than gardeners, and, were it not for our horticultural literature, intercommunication would be impossible to any great extent, so that an occasion like that which I have referred to might be embraced as a time for the exchange of ideas amongst a class of men who have but few opportunities of meeting together. J. T.

Plant Thefts.—On the 6th inst. I exhibited, at South Kensington, a basket of the new golden Thujopsis borealis, taken up from the open ground. The basket was placed in the council-room early in the morning, and between that time and four o'clock p.m. some thief cut and, I suppose, carried away two branches of my plant. Such thefts are, unfortunately, not unfrequent; can we, therefore, do nothing to stop them? It will be seen by an advertisement in another column that I have offered a reward to anyone who can give me such information as will bring the depredator to justice.—Charles Noble, *Bagshot.*

Souvenir du Congres Pear.—This fine new Pear of the first size and first quality is well deserving of extensive cultivation. It is an excellent grower upon the Quince. and a great bearer. Some of the fruits resemble the William. It was raised at Rouen by M. Boisduval, in 1856. Young trees bear abundantly when only two years old.—J. Scott, *Merriott Nurseries, Crewkerne.*

Clearing Walks of Moss.—To the question sometimes asked, "How can Moss, &c., be destroyed on gravel walks," at little cost and less risk than by using salt in any form, I answer keep them smooth by occasional rolling, and on a sharp frosty morning give them a good scrubbing with a half-worn-out birch broom, afterwards sweeping off the loosened rubbish with a better broom. —W. B.

Carnation Countess of Manvers.—This fine seedling Carnation was raised at Thoresby, by Mr. Henderson. The colour of the flower, for some time after it expands, is a rich cerise; but, as it becomes older, the hue brightens into a clear magenta. Apart from its beautiful shade, it is a first-rate winter-blooming variety, its blossoms being produced in abundance from September until May.—J. Muir.

Span-roofed v. Lean-to Houses for Grapes.—We are about to put up some lean-to Vineries here, but we are told that span-roofed houses are the best for Grape-growing. This information has induced us to ask some of your readers for their experience and advice in the matter. I know there are such houses at Garston, Clovenfords, and at Hallingbury Place, Essex. I can conceive the span-roof being preferable where there are no walls for lean-tos, but here we have a good 16-feet wall.—A. Macfarlane, *Great Tew, Enstone, Oxon.*

Piping at Clovenfords.—In the otherwise accurate description of this place at p. 297, there is an error in the length of piping stated. The 7,750 feet only heats four Vineries; the additional piping in the Pineries, pot-Vine houses, and other Vineries brings the amount up to 20,000 feet.—M.

No. 205.] SATURDAY, OCT. 23, 1875. [Vol. VIII.

"This is an art
Which does mend nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

LILY GROWING.

By Dr. WALLACE.

IF you do not deem me too presumptuous in following the lead of Mr. Wilson (see p. 277), I should like to offer a few remarks on this subject, the more so as Mr. Wilson says "we have still many things to learn and, perhaps, some to unlearn." My observations have reference mainly to Lilies grown out of doors in the open ground, as I have found, as a matter of experience, that when planted in pots they generally go wrong, being starved from want of moisture and sufficient room. The soil at Colchester, on the hills on which the town stands, is light and very dry—a well in my garden, 40 feet deep, never holds any water. In the valleys the soil is cool and loamy, a river meandering round one-half of the town. The rainfall average is among the lowest in England. Consequently, in dry summers, such as in that of 1874, in which no rain fell at Colchester for sixteen weeks, we lose a great many bulbs. In 1871—a very rainy season—our bulbs, on the other hand, did remarkably well, flowering very freely, and turning up in the autumn fine large roots, the stems studded with numerous smaller offsets. This season again, owing to the copious rains of July, our Lilies have grown well, but the drought that followed in August and September did mischief to the varieties of auratum planted in light dry soils; but those planted in the valleys in cool loam, especially where sheltered by Mulberry trees, and favoured by the heavy dews arising from the low-lying meadows, have flowered remarkably well, and the bulbs have turned up to our complete satisfaction. I may further add that we have not the great natural advantage, which Mr. Wilson possesses, of an abundant supply of peat close at hand; our Lilies are in this respect somewhat at a disadvantage. We grow out of doors nearly all the kinds in cultivation, both recently-imported and home-grown bulbs, and having watched their behaviour during dry and wet, hot and cold, summers, my observations may perhaps be thought worthy of record. I may further add that in our light soil on the hills of Colchester we have no fear of spring frosts hurting L. longiflorum, auratum, or speciosum, the air being too dry; but in the valleys it is another matter altogether. We find that on our light soils the following kinds do remarkably well:—All the umbellatum, croceum, and Thunbergianum families, L. candidum, longiflorum and its varieties, chalcedonicum, excelsum, and the speciosum section; also tigrinum sinense. In heavy loamy soil, L. auratum, Szovitzianum, Humboldtii, the Tiger family, most of the Martagon group; while in an intermediate soil of leaf mould, loam, and sand, we plant Buschianum, philadelphicum, pulchellum, Brownii, giganteum, tenuifolium, Krämeri, &c. The North American forms seem to require more peat and more moisture than the other groups. The more I see of this beautiful tribe the more I am convinced that Lilies require, so far as their roots are concerned, a cool bottom, abundant moisture, and, for most kinds, a free drainage; for instance, the slope of a hill facing south-east or south-west, with water from above percolating through the sub-soil, so as always to afford a supply, yet without stagnation, would be an admirable site. The formation of the tall, erect Lily stem, having its flower-buds concealed at the top, suggests the idea that it is naturally destined to find its way upwards among low-growing herbage and shrubs into the full light of day, to mature in sunshine its flowers and seed-pods. Such, at any rate, is the account given us by our Indian correspondent of the beautiful and stately L. Wallichianum, whose noble, large white flowers may be noticed miles away from the opposite bank of a deep Himalayan valley, growing some 10 or 12 feet in height, yet only just peering out above the surrounding brushwood and jungle. And here I would ask—Has any satisfactory explanation been given of the disease, which in Europe decimates the auratum section, affecting, but in a minor degree, other kinds? It may be recognised early by the curled, bent-over condition of the upper part of the stem, and a discoloured, black or brown foliage. Presently, after bright sunshine, the leaves shrivel and drop off, the stem withers, the flowers become abortive, the bulbs, when taken up, are found to be in a discoloured, decaying state, the upper set of roots are imperfectly developed and unhealthy, the lower roots scanty, brown and discoloured, perhaps dead. This disease I have seen attacking not merely imported or newly-planted bulbs, but also those that have been for several years unmoved. I have lost thousands of auratum from this cause, and other bulbs such as Krämeri and umbellatum, and, in a less degree, Thunbergianum and speciosum forms. While I venture to give my own opinion on the subject, I beg others also who have come to any conclusion on the subject, to give us the benefit of their experience. Bulbs like those of auratum have two sets of roots—one set emitted from the base of the root, the functions of which are to nourish the bulb; the other from the base of the stem, to supply the leaves and flowers. If anyone will examine a growing plant of L. auratum, about 6 inches high, he will find at the junction of the stem with the bulb a double ring of stout white roots whose function evidently, from their appearance, must be an important one. Now if from any cause, such as being too near the surface, these roots get dried up, scorched, or otherwise injured, it is clear that either the stem and leaves will be deprived of nourishment, or that they must obtain it from the bulb; in the former case I believe that the disease which I have described makes its appearance; in the latter the bulbs get smaller and deteriorate—a very common cause of complaint, I find, with people who cultivate Lilies in small pots, or who do not allow a sufficient supply of water. I attribute, therefore, this so-called disease to a want of moisture, experienced by the upper set of roots; it may be said that the lower roots may be supplied with moisture though the upper ones are not—granted; and, in that case, the lower roots will be more healthy, and help to keep the bulb alive under the double burden laid upon it. I have never found in any Lilies thus affected that the roots were healthy. I noticed also, during the rainy weather of last July, that the auratum grew well, and looked healthy and vigorous, but that some of them had the curled appearance of the stem above described. Soon after the dry weather set in the foliage turned brown and discoloured, and subsequently I read an excellent article in your journal, which pointed out that in reality the late heavy continuous rain had done much harm to plants, by encouraging surface roots at the expense of the deeper ones, and that, their roots now being scorched by the sun, with no adequate development of deep-seated roots, the foliage would flag and be more or less injured. If the rainfall had been less continuous, or come earlier in the season, the roots would have gone deeper for moisture. I have no doubt that my auratum bulbs suffered in this way; their roots, being too superficial, were insufficiently protected in our light soil from the scorching influence of the sun's rays. But, before drawing any conclusions, I will offer a few more observations. I have noticed, more especially in the Martagon section and among the North American forms, but in a less degree in many other Lilies, that fresh roots are formed very soon after the flowering; there is a brief period of rest coincident with the drying up of the foliage and perfecting of the seed; and the growth re-commences with the autumnal rains. If you now take up a puberulum or superbum you find fresh healthy roots emitted, and actively at work, if one may judge from their enlarged bulbous extremities thickly fringed with white myceloid processes; further, if you dry a few roots, and then again expose them to moisture, you will soon find young roots emitted. Now, what does this point out? The bulb is not at rest, as we might suppose, but, in autumn and winter, growth is going on, and preparation is being actively made for next year's flowering. I draw from this fact a conclusion of some importance to Lily cultivators, viz., that Lilies, to ensure good growth, should be planted out in their places as soon after flowering as possible, so that none of the young roots may be disturbed, and fair time may be given them to prepare for next year, and I will add another observation bearing on this point. The winter of 1873-4 was a very dry one. I had several beds of speciosum and longiflorum planted early in the autumn. I was much disappointed to find that, nevertheless, their growth the following summer was insignificant, and their flowers were very poor. Now, it is also a fact that the summer of 1874 was a very dry one; but I observed, in the spring, that these beds were coming up very weak, and I was led to attribute the reason of this, after much consideration, to their being deprived of the requisite amount of moisture during the winter months. I ask for further information on this point from other Lily growers. In purchasing Lilies I should like to give my orders very early in the season, and I should request that none of the roots be cut off the bulbs, but that they should be sent to me freshly taken up and packed in some moist material. Indeed, some of the Dutch growers recognise this; for, though they expose their roots intended for sale to the action of the sun and air, to dry the bulbs and give them a colour (according to the custom of the trade), yet they require that the bulbs they purchase shall be supplied to them quite fresh and with the roots uncut. Of course with imported bulbs this cannot be; but it is manifest that a bulb planted (say in October), rooting, and drawing its supplies of nourishment, must be in a far better condition to support active growth in early spring, and develop a fine head of flowers, than one planted in January or February, kept dry all the winter, having hardly time given to it to emit a few roots before the stem shoots up and development progresses at a rapid rate. All Lilies ought to be in their places, where they are to remain, by the end of October. A third point I wish also to mention, which I have not solved to my satisfaction, and on which I shall be glad of further infomation from other cultivators. Do Lily bulbs make fresh growth every year, the old growth decaying more or less, as does the Crocus? I submit this question for future decision, merely advancing a few observations bearing upon it. 1. When the stem shoots up from the centre of a bulb, it opens up and widely separates the old scales and much enlarges the size of the bulb. I have been surprised to find bulbs, under such circumstances, of the size of a medium Orange when in flower, though when planted they were only as large as a five-shilling piece. 2. Fresh growth, recognised by its white, fresh, firm appearance (light not yet having coloured it), takes place inside the bulb, pushing out the old discoloured scales. In kinds such as longiflorum, speciosum, auratum, and Martagon, where the colour of the scales is well marked, I have seen many bulbs, freshly dug up, entirely composed of new growth, a few only of the old scales remaining. 3. When Lilies degenerate, as they often do in pot culture, they get smaller and smaller every year; the tints of their flowers also degenerate. Now, in this case, is it not because the new growth under unfavourable circumstances becomes smaller and smaller each year, till, at length, it ceases altogether and the bulb dies? The same thing also happens to many bulbs grown out of doors in unfavourable conditions; they get weaker and weaker every year till they die, unless removed to a more suitable spot. I should much like to watch some Lily bulbs grown in a glass pot, planted against the side, so that all the processes of growth might be watched. 4. Amongst the North American forms with rhizomatous bulbs, such as superbum, puberulum, &c., fresh growths are emitted every year, in the form of buds or stolons; from these the flower-stem shoots upwards in the following year, so that each year there is a succession of new growth. From these considerations, it follows that well chosen bulbs, planted early, must be in the most favourable condition to flower freely and make good growth the succeeding year, producing a fine display of highly-coloured blooms. Hence the following rules:—1. Plant deeply—say 6 to 8 inches—so that the roots may easily get into a moist sub-soil, and be sheltered from the scorching, drying influence of the sun's rays. 2. Plant early in the autumn, so that the roots may be at work all the winter. 3. Choose fresh undried bulbs, with, if possible, new white central growth, whose roots have not been cut off nor dried. 4. Plant in a cool shady border not exhausted by roots of trees, where the roots may always obtain moisture, and yet not be saturated; where the surface of the ground is shaded from the sun's rays, and yet where the buds and leaves may enjoy sunshine to perfect the flowers; such, for instance, as a sloping bank, with water percolating its sub-soil, with a south-eastern or south-western aspect in our southern counties, and with a more southern aspect as we go further north. Carpet the soil with low-growing foliage or flowering plants, such as Rhododendrons; and, in the absence of anything better, use Mignonette or Chickweed rather than allow full exposure to the sun's scorching influence. 5. During the growing season, *i.e.*, from the time that the stem pushes above ground up to the time when the flowers begin to open, let an abundant supply of moisture be provided. In India, they have their rainy season, during which L. Wallichianum shoots up aloft; in Japan, they have abundant rains during May and June for six to eight weeks; this, coinciding with my own experience, makes me confident that, drainage being provided, we can hardly give too much water at that season. 6. Where Lilies are grown in pots it will be found advantageous to protect the upper roots by placing masses of fibrous peat and loam on the surface of the pot. 7. If pots are used, and they can hardly be avoided for some kinds (and that Lilies can be well grown in pots the practice of Mr. Wilson amply proves), then large pots must be used to provide abundant room for root action—pots with straight sides and broad bases are, for the same reason, better than those with narrow bases—and abundant moisture must be provided daily during the period of growth. 8. The Japanese plant their bulbs sideways, to prevent the wet lodging between the scales and rotting the bulbs. They use also a top-dressing of night soil during the winter months; but, from what I learn, they do not produce such fine blooms as we do in Europe. Amongst the localities mentioned for different bulbs by some of our correspondents are the following:—Neilgherrense, on the slope of the Himalayan valleys; auratum, in the woods of some parts of Japan; philadelphicum, in light, dry soils; canadense, in meadows; superbum, in swampy ground. I think it would be very desirable if we could thus ascertain the exact character of the habitat of each Lily; it would much assist cultivators to achieve success in flowering new and rare bulbs, and information of this kind, if supplied to Mr. Elwes for his forthcoming work on Lilies, will be especially valuable. Can anyone enlighten me as to the cause of decay of Brownii at the base of the bulb? There seems a weakness about this sort, and a tendency to decay, even in large strong bulbs. Is the character of the bulbs of the true L. Catesbæi, generally known? I have this year obtained some—the scales are numerous, whitish, and claw-shaped, with the apex broken off, presenting an appearance as if each scale had been prolonged into a leaf, which had fallen off by natural decay. In addition there was the dried flower-stems about 1 foot long; the character was quite distinct from that of any other bulb that I have seen. In conlusion, I trust the above remarks may be welcome, and not too lengthy. I am often applied to for information about Lily culture, and I always have great pleasure in answering such applications; such correspondents are always welcome, for, from their varied experience, they often are able to give information on some doubtful point which is especially valuable to me, and I trust that what I am able to impart is similarly acceptable.

Colchester.

Echeveria rotundifolia.—This has a neat dwarf habit of growth, and is intermediate between E. secunda glauca and E. metallica, of which it is a seedling. The plant is flat and circular, the leaves thick and rounded, very evenly set and pretty. The edges of the leaves are much tinted with colour, and it promises to make an effective bedding variety.—Alex. Dean.

Helianthus lenticularis.—This has been, for some time past, very attractive at Kew, and is, in fact, a striking Sunflower, being fully 15 or 16 feet in height, and having large, cordate, deep green leaves, and branched panicles of golden-rayed black-disced flowers, each 4 inches in diameter. It is a native of Kansas, where it is said to be very common. The habit is similar to that of the common Sunflower (H. annuus), but the flowers are borne in panicles. —B.

Mesembryanthemum conspicuum as a Bedding Plant.—This plant is well adapted for bedding purposes, more especially in dry or light soils. It is what is usually termed a greenhouse succulent, but here we find it very nearly hardy, and, doubtless, in sheltered positions, it would pass the winter unscathed out of doors. We have this season used it as a "setting" for various hardy Sedums, and its lovely mauve-pink blossoms, which are borne in great profusion, show to the best advantage on such a ground as Sedum glaucum and S. corsicum.—W. Wildsmith.

Alonsoa incisifolia.—This lovely plant deserves to be cultivated far more than it is. I consider it worthy of a place in every collection, however small. I was quite struck with a specimen of it in full bloom last April in a cottage window, where it was bearing some hundreds of its lovely spikes of scarlet flowers. With a little management it will flower the whole year round in a greenhouse, and it is so easily grown that old plants going out of flower only require cutting back and re-potting to induce them to again flower freely in a month or six weeks. It likes a good rich light soil.—H. C.

NOTES OF THE WEEK.

—— The graceful and stately Ferulas, to the great merits of which we have often alluded, are now again pushing their plumes above the ground. We have, we fear, done them some injustice in saying they go to rest early in the summer, for during the present month we noticed the old leaves yet green in Mr. Reynolds Hole's garden at Caunton.

—— The beautiful Crinum Moorei is still (October 20th) in flower at Glasnevin on a warm border in front of the glasshouses. It is a large rose-coloured species, reminding one of the colour of the flowers of the Belladonna Lily, but having tropical amplitude of leaf and great vigour. It appears to be quite hardy, and is a very precious gain for our gardens.

—— Some fine masses of the rare and curious aquatic Eriocaulon septangulare are now blooming freely in the Glasgow Botanic Garden. The pots in which they are growing are placed in water up to their rims; the soil used is peat and river-sand. The plant grows naturally in peaty lakes and pools in the Isle of Skye and neighbouring islands, and also in some parts of Ireland.

—— Buphthalmum salicifolium is one of the gayest of the hardy plants that bloom through the autumn. We have so many yellow flowers of the Order Compositæ, to which this belongs, that there is little need to wish for more of them. There is, however, in the slender rays and star-like flowers of this, qualities which make it worth a place in the mixed border or on the margin of shrubberies.

—— The beautiful Oxalis Bowiei is still in flower in many gardens, not merely showing blooms here and there, but with tufts that are swarming with rose-coloured blossoms and buds as they run along at the foot of the hothouse walls. It is an old flower which never should be absent from the smallest garden on a free soil. On the London clay we have not noticed it flower; but on the Thames sand in the old Chelsea Garden it is at home.

—— Mr. Dowd has now been appointed curator of the College Gardens, Dublin, so long and ably managed by Mr. John Bain. Mr. Dowd is well fitted for this important appointment, having had more than forty years' experience in the best gardens in Ireland, including the once famous Terenure and Glasnevin. He is also thoroughly acquainted with the native plants of Ireland, and was the first to observe various plants now included in her flora.

—— Messrs. Veitch have sent us cut specimens of Cornus capitata, a pretty white-berried shrub, growing in their nursery, concerning which they write as follows:—"We think it is a plant that should be better known and more cultivated than it is, especially as it does so well in or near London. We received the seeds, from which our plants were raised, from the Rocky Mountains." It resembles the common Dogwood of our hedges and thickets, except that its clusters of fruit are white instead of black.

—— The fifth volume of the "Dictionnaire de Pomologie," by the late M. André Leroy, is in the press, and is as ably compiled as the previous portions of the work have been. An idea of the thorough and conscientious manner in which the author applied himself to his work may be gained from the fact that one single variety of Peach—the Apricot Peach of Nancy—is credited with no fewer than twenty-nine synonyms, the authorities in each case being quoted, and other interesting matter connected with the fruit and its history being supplied.

—— At the congress of the French Pomological Society, held in connection with the recent international exhibition of fruit at Ghent, the following fruits were "admitted;" that is, considered worthy of cultivation:—Apricots: Gros Rouge d'Alexandrie and Musqué de Provence. Raspberry: Surprise d'Automne. Peaches: Belle de Toulouse, Belle Impériale, Noblesse, Précoce Louise, and Salwey. Pears: Madame Grégoire, Marie Benoist, Professeur Hortolés, and Sœur Grégoire. Apples: Reinette de Burchard, Reinette des Carmes, and Transparent de Croncels. Plums: Early Favourite and Tardive Musqué. This body practises the equally useful function of naming sorts not worthy of general cultivation, and on this occasion a great number were rejected.

—— The Council of the Royal Horticultural Society have decided to hold five great shows besides the usual fortnightly meetings in 1876. The first or spring show will be held on the 15th of March, the succeeding shows on the 3rd of May, the 7th and 8th of June, and the 19th and 20th of July; the great fruit show being fixed for the 8th of November. A liberal schedule is in preparation, and will shortly be ready for circulation. The great fruit show, of this year, to be held on the 10th of next month, will, we understand, be open for two days. On the evening of the first day the exhibition will be lighted by gas, when the public will be admitted on payment of 1s.; the whole amount of the prizes will be paid in full, and not at the rate of 50 per cent. reduction, as was announced in the early part of the year.

—— Dichorizandra thyrsiflora is the most striking hothouse plant of the season, bearing, as it does, large and beautiful heads of fine blue flowers and buds, and lasting in flower from August till nearly Christmas.

—— Among the flowers that are, on account of their beauty, entitled to a place in the October garden is the richly-hued Salvia dulcis. It is somewhat hardier than the better known S. Grahami, both living out of doors in mild districts of England and Ireland.

—— Mr. J. Scott, of Merriott, sends us specimens of Brockworth Park Pear, and also of Bonne d'Ezée, to prove Brockworth Park to be the same as the older variety. The Pears sent us are identical, the variety being a well marked one. The flavour is good and delicate, but rather watery.

—— There is a curious stove tree in flower now at Glasnevin, Spathodea lævis, a native of Guinea, and of the Bignonia Order. It has flowers somewhat like those of a large Gladiolus, and lilac, marbled with white, in colour, the whole inner surface being furrowed and blistered. The leaves are large and pinnate.

—— The well-known Dicksonia antarctica, the commonest of our cultivated tree-Ferns, has been tried out of doors for several years in the gardens at Fota, near Cork, and has, we are informed, thriven well. Two specimens of it are planted under the Bamboos on a small island.

—— The most brilliant hardy flowers of the month of October are the Cardinal flowers (Lobelia cardinalis and its allies and varieties). Among these, Lobelia ignea is, as we write (October 19th), magnificent in the College Botanic Gardens, at Dublin. There, and in districts where the plants survive through the winter, they form strong tufts; in the marshy woods of North America, however, the Cardinal flower blooms much earlier than this. It is curious that these fine flowers are so rarely seen about London.

—— At a meeting of the Court of Common Council, the other day, it was reported that 2,000 acres of land, which had been enclosed, would now be thrown back into Epping Forest, making its whole extent 5,000 acres. The occupants of about 1,400 acres, on which large mansions had been built, would not be called upon to clear away their buildings, as they had paid full value for the land, but they would have to pay quit rents, which would be spent in keeping up the forest.

—— The Jalap plant (a tropical Bindweed with a lovely crimson flower) still shows its cups as it grows through the shrubs on the walls of the College Botanic Gardens at Dublin. It has scrambled along these walls for nearly forty years, and forms tubers like great purple Potatoes. The medicinal value of these, as compared with American tubers, has been tested and found to be equally efficacious. It is a valuable plant for the wild garden where the soil is rich and well-drained and the climate genial.

—— Mr. Simmonds, in his "Catalogue of Waste Products," shows us that nothing is too small or unimportant to rescue from destruction. As an illustration, we may mention the fact of the application as fire-lighters of the central portion of the ear of the Indian Corn after the seeds have been taken out; also of the cones of the Scotch Fir (Pinus sylvestris), which are sold in France under the name of Allumettes des Landes. These are novel applications of what would otherwise be pure waste substances; but there are others which, though waste from one manufacture, are used to adulterate others. From Vegetable Marrow, Melon, and other Curcurbitaceous seeds, many of the so-called sugared almonds of the confectioners are made. In China the seeds of the Water-Melon are very largely used as food.

—— Eryngium pandanifolium is well worth the attention of all lovers of hardy noble-habited plants for out-door effects. It now bears a branched inflorescence from 10 to 12 feet high, planted in a border opposite the Economic-house at Kew. Its habit is that of a long-leaved Pine-apple, the leaves being 4 to 5 feet in length, forming dense tufts. The flower-stem is as thick as one's wrist at the base, and is now covered with hundreds of little oblong hedgehog-like clusters of fruit. Planted in sheltered nooks on the lawn or in shrubbery borders, this plant will be very ornamental—indeed, worthy of being associated with the finest Yuccas—and it is valuable as belonging to a noble type of vegetation rather sparingly represented in our outdoor gardens. In the same border two other fine-leaved species of Eryngium are also in flower, viz., E. Serra and paniculatum, which, though they have not yet been proved to withstand our winters, will, doubtless, form suitable ornaments for outdoor decoration of gardens in the milder parts of the kingdom.

ALPINE COLUMBINES.

The Columbines are frequently of greater stature than most of the plants strictly termed Alpine, but they are, nevertheless, true Alpines, and among the most singularly beautiful of the class. When single plants of the wild form of the common Columbine are met with in the open copses and by the mountain streamlets in northern England, it looks a queen among the other flowers of the region. The blue, and blue and white Alpine kinds, living in the high bushy places in the Alps and Pyrenees, and, indeed, of all European and north Asian mountain chains, are among the fairest of all flowers. Climbing the sunny hills of the Sierras in California one meets with a large scarlet Columbine (Aquilegia eximia) that has the vigour of a Lily and the grace of a Fuchsia; and, in the mountains above Salt Lake City, in Utah, and on many others in the Rocky Mountain region, one meets with the Rocky Mountain Columbine (A. cœrulea), with its long and slender spurs and lovely cool tints in its erect flowers. Indeed, there is no family that has a wider share in adorning the mountains; and the Columbines are to the smaller Alpine flowers what the Birches are to the hill shrubs. Some of the species are much smaller than those commonly grown, as, for example, the Pyrenean Columbine. Although our cottage gardens are alive with Columbines in much beauty of colour in early summer, there is some difficulty experienced in cultivating the rarer Alpine varieties. Hence, such highly-valued kinds as the Altain Columbine (A. glandulosa), the Alpine Columbine (A. alpina), are too rarely seen flowering well in gardens, and frequently disappear where introduced. They require carefully planting in free sandy or gritty, though always moist, ground, and in well-drained ledges in the rock-garden, mainly in half shady positions or northern exposures. They should be raised from seed as often as this is possible. The Rocky Mountain Columbine is not by any means so difficult to grow as the Old World Alpine kinds, thriving as it does in free sandy loam on the level ground. So does the great Californian and the Canadian kinds. Most Columbines, however, fail to form enduring tufts in our gardens, and where this is the case they must be raised from seed as frequently as may be. The white form of the Rocky Mountain Columbine is a lovely variety well deserving a place among the taller plants on the rock-garden. V.

BEDDING LOBELIAS.

Mr. Gumbleton deserves the greatest praise for the assiduity with which he has conducted his trials of merit of the bedding-out Lobelias, and I cannot help thinking that many vexatious disappointments might be saved by a careful comparison of the various strains when planted out previously to circulation—in fact, it is only by such a test that superior varieties can be distinguished and worthless sorts expunged. Why should not the Royal Horticultural Society, who have done so much in continued trials to place only reliable varieties of Fuchsias, Pelargoniums, and Pansies before the public, enlarge their operations, and include the somewhat extensive and complex class of Lobelias? I am quite certain that such a trial is absolutely necessary, that is, if we are to have anything like reliable data which will enable us to distinguish really superior varieties, suited for particular purposes. Dwarf Lobelias in carpet designs are very pretty, and, for a month or two, we have in the pumila grandiflora class, several which are charmingly attractive, yet they lack that continuity of bloom which is so desirable, and which, combined with compactness of habit and brilliancy of colour, should determine their merits. In addition to those mentioned by Mr. Gumbleton as superior varieties, I would name Crystal Palace compacta as being an excellent one. Its colour is blue, and its habit of growth close and compact, yet free. I have also seen a meritorious strain, which at once attracted my attention, grown by Mr. Rowe, in the Barbourne Nurseries, Worcester. This is of the L. speciosa strain, having a free habit of growth, unrivalled for the profusion of its large brilliant blue flowers, and thoroughly effective when placed in the second front row of a border. From its free habit of growth it is suitable for growing in hanging baskets or vases. I quite endorse the opinion that the Duchess of Edinburgh Lobelia, of which so much was expected, is a worthless sort. It is the most miserable apology for a Lobelia I have ever grown, when planted out; at the same time, it gave promise of superiority when grown in pots.

Geo. Westland.

STANDARD HYBRID SOLANUMS.

Of all the varieties of these now in cultivation, I prefer the Solanum pseudo-capsicum, because of its neat standard mode of growth, and I think this form is one of the most useful and effective for these berried plants. During the winter months, when flowers are scarce, it is possible to build up banks of foliage of diverse hues, amongst which small bush plants of the dwarf Solanums, however well berried, would be comparatively lost, while, under such circumstances standard plants would be useful, owing to their prominence above the mass of foliage with which they were associated. The pseudo-capsicum strain produces bright scarlet fruit, and has naturally a standard habit of growth, which may be improved by cutting away the lower shoots and encouraging a clean stem and a neat head. In order to secure good plants for the winter, seed should be sown in heat early in spring; the seedlings should be potted up and established in large 60-sized pots, and then about the end of May they should be turned out into the open ground in fairly good soil. Here they will grow flowers and fruit, and will be ready for lifting about the beginning of October, by which time the berries should be getting well coloured. Where heat is not at all times available in spring, as is sometimes the case, it is a good plan to sow the seed during the summer in a cool house or frame; this will furnish good strong plants to stand in small pots through the winter for turning out next spring. I have just now many fine plants thus treated, which have heads bearing from 120 to 150 berries on each, all colouring brightly, and, owing to their having been carefully lifted, they have not lost a leaf. Plants plunged in pots during the summer always have a starved look even if well watered. They do much better if fairly turned out, and can be lifted in autumn without check. A. D.

Protecting Yuccas.—In reply to an enquiry in a late number of The Garden, I may state, that a few years ago a goodly plant of Y. gloriosa, in Merrion Square, showed, in October, a flower stem, whose bloom could not be expected to develop before winter or to survive unscathed till returning spring. Hoping for a mild season, we drew up the surrounding foliage so as to envelope the stem to its tip, and wound round it a woollen string, fastened to one or more stakes. Both winter and spring were mild; and, as the latter opened cheerily, the flower-stalk rose, and, before we entered upon summer, one of the first specimens of this noble plant which ever graced a Dublin garden was in bloom. This autumn, whilst admiring two robust plants of variegated Y. aloifolia in Mr. Ellacombe's garden, at Bitton, I enquired how he protects them in winter, and it appears that the only protection they receive is a board or pane of glass placed above them to prevent water lodging in the heart, of which the family are tenderly sensitive.—John Adair.

Fruit of the Vanilla and Monstera.—I have succeeded in fruiting both the Vanilla planifolia and lutescens or aromatica, and shall be glad to know if the fruit must be allowed to ripen before it is gathered; again, how shall I save it, by drying or otherwise, for domestic purposes? I shall also feel obliged if any of your correspondents can inform me how the fruit of Monstera deliciosa is to be eaten, so as to avoid the little stinging prickles with which it bristles, and which render so very disagreeable what is otherwise a most delicious fruit.—James Garnier, *Rossemore Castle, Galway.* [As soon as the Vanilla pods commence to ripen, a piece of matting should be tied at the extremity of the pods, to prevent them from opening, which they are liable to do. The fruit should not be gathered until it becomes chocolate in colour, and easily leaves the vine on which it is growing. It should be dried for a few days, and then placed in bottles tightly corked. I have some pods by me now, of excellent quality, that have been gathered eleven years. With regard to the Monstera, the prickles can only be got rid of by paring off the heads of the pips, or by rubbing them carefully with a fine cloth.—Edward Bennett, *Rabley, Herts.*]

Striking Caladium Cuttings in Water.—Accident often leads to discoveries which, though simple in themselves, may lead to important results, and the following, reported in the "Revue Horticole," is an instance of this. A stem of the Caladium Chantini was accidentally broken off on a level with the rhizome of the plant, and no trace of roots were apparent on the portion thus detached. Not wishing to lose it, and thinking to preserve the beauty of the flowers, the stalk was inserted in a vase filled with water, which was then placed on a mantel-piece. At the end of a week it was noticed that the flowers still retained a perfectly fresh appearance, and, on examination, it was found that roots had pushed from the submerged part. It was then placed in a cup, and deposited in a propagating house, where it soon became a strong healthy growing plant. Acting upon the hint thus given experiments have since been made upon other kinds of Caladium, and this method of inducing the cuttings to push roots has, in every case, succeeded perfectly.

THE FLOWER GARDEN.

LEPTOSIPHON ROSEUS.

What the genus Leptosiphon is among other annual plants the L. roseus may be said to be to the other species of the same genus—a pearl among pearls, a floral gem of the first water. If this estimate of its merit should be challenged it will hardly be by those who have had the privilege of seeing it in perfection, but rather by such as have seen only the imperfect specimens resulting from the too common practice of thick sowing. To produce the best results with this charming annual, it must be strongly grown, and robust specimens can only be obtained by thin sowing. In light dry soils early autumn sowing is strongly recommended. It is not enough to sow the seed at any period of autumn, it must be—and this applies to most annuals sown at this season—committed to the soil sufficiently early to permit the young plants to attain some size before the setting in of winter; in short, a good framework must be laid, which, on the return of spring, will develop into an effective tuft, covered with multitudes of elegant rosy-carmine flowers, both reflecting credit upon, and delighting the heart of, its cultivator. When the sowing of the seed has been deferred till a late period of the summer, it is better to sow in boxes or pans, in a frame or orchard-house, and plant out seedlings in April; or, in case this should be thought to involve too much trouble, the sowing may be deferred till early spring. A fair amount of success may be looked for, especially in good soils, in which spring sowing will often yield excellent results; the advantages of autumnal sowing are, in fact, best seen in the light sandy soils with which the writer has the misfortune to be so familiar, and which suffer so much in seasons of drought. In the accompanying engraving the habit and profuseness of bloom of this exquisite little annual are well represented, and it needs but a slight effort of the imagination to guess the results which might be produced by the combination of similar tufts in the formation of beds or borders. All the species of this genus, or rather section of the genus Gilia, are thoroughly deserving of universal cultivation. The very pretty L. luteus and its deeper-coloured variety aureus, are scarcely inferior to the L. roseus, which they closely resemble in their general habit, but have somewhat smaller flowers. The hybrid varieties of these, introduced by Messrs. Vilmorin-Andrieux & Co., of Paris, are no less interesting for their supposed origin than for the singular variety of shades occurring among them. The larger-flowered species, L. densiflorus and L. androsaceus should be too well known to need either description or eulogium. The former is distinguished by the shortness of its flower-tube, the length of which scarcely exceeds that of the limb of the corolla. Both have lilac-purple flowers, and are most attractive annuals, which never fail to delight their possessor. Of both species there are good white varieties, which deserve especial recommendation, that of L. densiflorus being particularly desirable.

Leptosiphon roseus.

Ipswich. W. Thompson.

Vitality of Pelargonium Seed.—The "Cultivateur" gives an instance of the germination of Pelargonium seeds nine years after they were gathered. In 1866, M. Sisley obtained seeds by cross-fertilisation of the zonal and inquinans varieties, some of which were given to M. Hardy, who sowed a portion in 1867 and kept the rest until the spring of the present year, when they also were sown, considerable care being taken in the operation. Notwithstanding the interval that had elapsed between gathering and sowing the seed, a very large proportion germinated, and the plants are said to be doing well.

MICHAELMAS DAISIES, OR ASTERS.

When we speak of Asters, we are apt to associate the name with the annual kinds popularly known as China Asters, and are thus led to overlook the rightful owners of the name—those old-fashioned flowers, literally stars of the earth, which shine out all the brighter, owing to the comparatively flowerless time of the year during which they are in perfection. Just at this season, when our gardens are nearly devoid of bright colour, and when hardy flowers, of nearly all kinds, are at their lowest ebb, Michaelmas Daisies, as they are commonly called, when well planted, keep up an attractive floral display during the last few sunny days of autumn. They are not quite so showy as Chrysanthemums at a distance, but, when closely examined, they are more beautiful, their slender-rayed flowers possessing all the soft and delicate tints between white-rose and purple, while the bright yellow disc bestows upon them an additional charm. Nearly all the species, of which there are at least two or three hundred in books, are natives of North America, and are perfectly hardy in this country, luxuriating in any soil or climate, and, when once planted, requiring little attention. As to specific distinctions, the less said about these the better; but that does not detract from their homely beauty and general usefulness, for they seem just as fresh and vigorous in the little forecourts and back gardens of Bermondsey and Stratford as in the herbaceous borders at Chiswick or Kew. They are just the plants, too, that everyone can grow, being even hardier and easier to cultivate than a Sweet William or Thrift; all that has to be done is to cut a strong tuft to pieces with a spade and plant the divisions wherever they are to flower. Some of the kinds produce long spray-like panicles, which are extremely graceful in a cut state arranged along with sprigs of other late flowers, such as Fuchsia Riccartoni, double or single Marigolds, Othonna cheirifolia, flower spikes of Anderson's Veronica, the silvery striped foliage of the variegated Arundo, and double or single-flowered Dahlias, bright-tinted Chrysanthemums, and a few pieces of the large white flowering Pyrethrum serotimum, which should be grown in

A. Tradescanti.

A. formosissimus.

every collection of North American Asters, as its pretty, yellow-eyed flowers show to great advantage beside the bluish-purple and rosy-crimson large-flowered Asters, such as A. Novæ Angliæ, purpureus, and roseus, which, together with A. cassiarabicus, may be taken as three of the very best of the late-blooming kinds. There are few late-flowering hardy plants which would better repay a little extra trouble and attention on the part of the hybridiser than these. One of the best of all the species now flowering is the white and lilac-flowered A. versicolor, a charming little plant, little over a foot in height, and yet as showy in its way as the large growing kinds, some of which attain a height from 6 to 8 feet in deep rich soils. To obtain ripe reed from the very late kinds, it would be necessary to pot them, and to remove them to a dry sunny greenhouse, and, as a compact-habited seed-bearing parent, A. versicolor would undoubtedly be the best dwarf kind; this might be crossed reciprocally with A. Novæ Angliæ, pulchellus, roseus, or A. turbinellus, and the result, if we mistake not, would be a race of hybrids far better and more ornamental than nine-tenths of the species or forms now grown. Indeed, it is questionable whether this plant would not rival the Chrysanthemum in a few years as a pot-plant for winter-flowering, if cross-breeding was intelligently carried out. Even seeds, collected from the best forms, might produce many improved varieties, for these flowers are much visited during sunny weather by bees, flies, and other insects, and doubtless cross fecundation is, through their agency, accidentally effected. At any rate, here there is an open field in which some intelligent cross-breeder might try experiments with advantage. Aster spurius (tall) and A. hyssopifolius (dwarf) are two good kinds now in flower in the College Gardens at Dublin. There, also, is in cultivation the original Michaelmas Daisy (A. Tradescanti), a variety less attractive than many more recently introduced species. A. grandiflorus, as yet, has not a sign of a bud on it in the Dublin gardens. It is good against a wall, very late, and would be good as a late pot plant. The following notes have all been made from plants now in flower in the Royal Botanic Gardens, Kew, and Royal Horticultural Gardens, Chiswick:

A. Novæ Belgii.—This is an old Linnean species, a native of the United States, and one which grows to a height of from 5 to 6 feet. The cæspitose stems are clothed with smooth lance-shaped leaves, and the flowers are borne in dense terminal panicles, each flower being an inch in diameter. In colour they are pale lilac, with a brownish-yellow eye. The plant is very robust, and a free bloomer.

A. Novæ Angliæ var. pulchellus.—This is the best of all the late-blooming bluish-purple kinds. It forms strong tufts from 4 to 5 feet in height. The panicles consist of deep blue, orange-eyed flowers, which form a dense floriferous head; and the lance-shaped foliage is profuse, and of a bright green colour. This is a noble plant for a warm sunny herbaceous border, and for the supply of cut flowers.

A. Novæ Angliæ var. roseus.—This is similar in habit to the last-named, but the panicles of flowers are taller and more lax, while the flowers themselves are of a deep bright rose, and the eye is crimson, brown, or red, not yellow as in the last. The flowers of this plant are well adapted for cutting, being of a bright colour, of large size, like the last, and borne on long slender lateral and terminal branches.

A. laxus.—A vigorous-growing fresh-looking plant, which attains a height of from 4 to 5 feet in good soils, the flowers being fully an inch across, and of a pale lilac colour, with a yellow eye. It is distinct, and well worth a place at the back of a sunny border.

A. puniceus.—This is a free-growing plant, which attains a height of from 5 to 7 feet in good soils, its stems being clothed with fresh green lance-shaped foliage, the bracts on the flower-stem being of a light pea-green tint that sets off the elegant, slender, white-rayed flowers to the best advantage. The disc of the flowers is yellow. The flowers and young leaves of this plant are so fresh, and it blooms so late in October that it is a very desirable plant.

A. dumosus.—Another old and very distinct Linnean species, growing about 2 feet in height; its stems are branched nearly at right angles from the base, and bear at their tips clusters of small white-rayed, purple-disced flowers. The ray florets of this species being reflexed, the flowers look smaller than they actually are. This plant is now literally covered with flowers, and although not so showy as the larger kinds it deserves a place in the collection.

A. trinervis.—This is a distinct-habited plant about 3 feet in height, the slender erect stems being clothed with elliptical, coarsely-serrated leaves from 3 to 4 inches in length. The flowers are individually about an inch across, the ray florets being of a pale lilac colour, while the disc is bright yellow.

A. turbinellus.—This is a showy species, and a most valuable plant, which is now in full beauty. It attains a height of 2 or 3 feet. The stems being much branched towards the apex, and the large lilac-rayed yellow-eyed flowers being borne on long and very slender pedicels, give to the plant an extremely elegant appearance. It forms a head fully 3 feet across, the individual flowers being 1½ inches in diameter.

A. Chapmani.—This is a tall-growing and free-blooming plant, often 5 or 6 feet in height, the stems being clothed below with lance-shaped serrate leaves, 3 to 5 inches in length. The panicles are lax and much branched, the individual flowers being nearly an inch across, and of a clear bluish-lilac colour, with a yellow eye, which turns purple when the disc florets open.

A. ericoides.—This is one of the most distinct of all the species, resembling A. dumosus in habit, but having much smaller, narrower, Linum-like foliage. The flowers are barely half-an-inch in width, and are clear white in colour, with a yellow eye. The plant is dense in habit, attaining a height of from 2 to 3 feet, and is very floriferous. It forms a good companion for the white and purple-flowered A. dumosus, which it equals in habit, but is much brighter, and at a little distance looks like a bush of Chamomile or Matricaria.

A. amelloides.—This species, the height of which is from 12 to 18 inches, has undulated oblong obtuse leaves, the flowers being blue, with a bright yellow disc. It is useful both on borders and rock-work. The plants should not be closer than 18 inches apart.

A. amelloides.

A. multiflorus.—An Aitonian species, similar in general habit to ericoides, but 4 or 5 feet in height; and the narrow foliage is more densely arranged on the panicles, and of a deeper green colour. The flowers of the plant are, like those of ericoides, small, having pure white-rayed florets and a yellow disc, but they are not so showy as those of the last. When its white flowers are just expanding, the slender-leaved lateral branches remind one of those of Fabiana imbricata.

A. Tradescanti.—An old Linnean species, attaining a yard in height, and resembling A. dumosus in general habit of growth, the flowers being borne in closely-branched panicles. The ray florets are white, and the eye is clear yellow. It is a free bloomer, but not particularly showy.

A. sikkimensis.—This is a Hookerian species from the Himalayas, and is quite distinct in habit; indeed, its flexuose, dark brown stems, lance-shaped rugose foliage, and panicles of pale bluish-lilac, yellow-eyed flowers, remind one of Ceanothus azureus. The individual flowers measure from half to three-quarters of an inch across, and are borne in lax terminal clusters.

A. oblongifolius.—A close-habited North American species, from 3 to 4 feet in height, forming a dense mass of bright green foliage studded with innumerable bluish-lilac flowers, each being about half-an-inch in diameter. It is similar to the white-flowered A. multiflorus in habit, and forms a good blue-flowered companion to that plant.

A. versicolor.—This is a little gem, rarely exceeding a foot in height, its numerous procumbent stems being surmounted by a dense cluster of white-rayed yellow-eyed flowers, each nearly an inch in diameter. The older flowers change to a bright rosy-purple, with a dark brown disc, and this variation of colour adds a charm to the little plant not possessed by its larger allies. The stems are clothed with bright green, lance-shaped leaves, and, in general appearance, the plant reminds one of a low-growing herbaceous Phlox. A bed of this plant would be quite a feature in any flower garden during October, and it is well worth a trial for this purpose.

A. pendulus.—A tall-growing, much-branched Aitonian species, from the United States, growing 4 or 5 feet in height. Its purplish-brown stems are clothed with fresh green lance-shaped leaves, whilst the slender-branched panicles assume naturally a graceful sub-pendent habit, and are thickly studded with small white-rayed yellow-eyed flowers, each about half-an-inch in diameter.

A. amplexicaulis.—This is closely related to A. Novæ Angliæ, but does not attain so great a height as that kind, and its flowers are also borne in greater profusion than in that species. They are produced during September, and are pale violet in colour.

A. amplexicaulis.

A. Nevei.—This is a provisional name for a very elegant free-flowering variety, now blooming brightly at Kew; it grows to a height of from 3 to 4 feet, the stout stems being clothed with bright green linear lance-shaped foliage; the flowers, each being an inch in diameter, are borne on gracefully arching panicles, and are pure white in colour, with a clear yellow eye. This is so distinct and floriferous that it well deserves a place among the large-flowered kinds.

A. sagittifolius.—This is nearly allied to the last, its height being from 3 to 5 feet. The flowers are white or lilac, with a purple disc.

A. hyssopifolius.—This is a dwarf, dense growing kind, barely 2 feet in height. The stems are clothed with narrow Hyssop or Sedum-like glaucous leaves, the largest barely 2 inches in length, and lance-shaped. The flowers are borne in dense panicles at the apex of the branches, and are each about an inch in diameter; they are of a rosy-lilac colour, with a yellow disc. This is a valuable dwarf-growing and floriferous variety.

A. Novæ Angliæ roseus.

A. macrophyllus.—A very distinct kind, having cordate serrate leaves 2 or 3 inches long, and about 1½ or 2 inches broad. It flowers very freely, but seldom attains a greater height than 3 feet, and is in full beauty early in September.

A. æstivus.—An extremely elegant-habited North American plant from 4 to 5 feet in height, the slender arched spray-like panicles being studded with white flowers half-an-inch or more in diameter. The terminal flower of each spray opens first, as is the case with the Chrysanthemum and many other Composites—a circumstance which has the effect of giving the plant a singularly elegant appearance, each wiry lateral stem being tipped by a silvery star-like flower. Although this is not so showy as some others in the open border, its flowers would be peculiarly attractive arranged in a vase with Grasses or Ferns.

A. diffusus.—A strong-growing bushy plant, varying from 3 to 4 feet in height, and somewhat resembling the more elegant A. ericoides in general habit. The stems are clothed with lance-shaped leaves, from 1 to 2 inches in length, by about half-an-inch in breadth, the slender much-branched panicles being studded with white-rayed, yellow, or purple-disced flowers, the largest of which are only 3 or 5 lines in diameter.

A. purpuratus.—This is a vigorous plant, which attains a height of from 3 or 4 feet, its numerous-tufted stems being clothed with bright green, lance-shaped leaves, not unlike those of an herbaceous Phlox in general contour, each being 4 or 5 inches in length, and fully an inch broad in the widest part. The flowers are borne in large terminal panicles, and somewhat resemble those of A. Novæ Angliæ in size, but the ray is rather more lax, and the colour a lighter shade of blue, almost cerulean in its tone. The disc is of a clear yellow colour.

A. alpinus.—This attains a height of 7 or 8 inches, being, in fact, one of the dwarfest kinds in cultivation. Its leaves are alternate, and covered with hairs, the root-leaves being oblong spathulate and disposed in rosettes. The flowers, which are blue, measure from 1 to 2 inches across, and are produced in early summer. This species is not so much cultivated as it should be. It is sometimes said to be delicate; but this is not the case when grown in good soil and in positions sheltered from strong winds.

A. alpinus.

A. formosissimus.—Whence this species originally came is not known. It grows to a height of more than 4 feet. The leaves are alternate oval-lance-shaped and dark green in colour. The flowers are borne in loose pyramidal corymbs, and are lilac-blue in colour, with a yellow disc, which becomes, after a time, purple. The species is a very ornamental one, and flowers in September.

A. prenanthoides.—A robust plant, from 2 to 3 feet in height. The clustered stems are clothed with lance-shaped leaves, from 4 to 5 inches in length, and of a deep green colour. The flowers are borne in terminal panicles, and are of a clear bluish-lilac colour with a bright yellow eye, the segments of the ray being very narrow. The flowers have an elegant frill-like appearance.

A. terminalis.—This is a bushy-habited species, attaining a height of from 3 to 4 feet, and bearing terminal panicles of light blue-rayed flowers, each nearly an inch across. The lateral branches of the panicles are long and slender, and the flowers, being borne at the apex of these, are very convenient for cutting.

A. amethystinus.—A strong-growing variety, belonging to the Novæ Angliæ section, and attaining a height of from 2 to 3 feet. The linear lance-shaped, or linear leaves, are of a bright green colour, and the dense branched panicles are studded with large light bluish lilac or amethystine flowers, each an inch or more in diameter, the colour being brightened by a clear brown and yellow eye.

A. longifolius formosus.—This is one of the prettiest of all late-blooming kinds. It grows about 1 foot in height, and bears dense masses of rosy-lilac blossoms, which, even at a considerable distance off, are very showy and effective. It is one of the most valuable of all hardy border flowers.

F. W. B.

CULTURE OF BELLADONNA LILIES.

These lovely Lilies must be seen in masses to be properly appreciated. A border here, 2 feet wide by about 40 feet long, is just now most attractive, containing, as it does, some hundreds of flower stems, which bear on an average, seven or eight blooms each. Some of the clumps carry as many as twenty-seven flower-stems, each averaging the above number of flowers; and anyone acquainted with the beauty of this delicately-tinted Lily can therefore imagine the imposing effect such a mass of bloom must have. It is a little surprising that this beautiful plant is not more generally met with than it is, as it is sufficiently hardy to stand our winter with only slight protection, such as is afforded by the shelter of a wall having a southern aspect. To cultivate and flower it successfully, it is necessary, if the soil be at all stiff or retentive, that the border should be well drained. Supposing a favourable situation to have been chosen, such as that mentioned above, the whole of the soil should be taken out to the depth of 3 feet or so; and about 6 inches of broken bricks should then be placed in the bottom for the purpose of drainage. Over this some half-rotten dung should then be scattered, to keep it perfectly open, and to form a supply of rich food deep down for the plants to feed on after they become established. If the natural soil is not fairly good, some fresh sandy mellow loam should be substituted, or added to that previously thrown out, so as to improve its quality. Should the soil be at all stiff, a few barrow-loads of thoroughly decomposed leaf soil, and one or two of sharp sand should be added. The whole of this should then be well mixed up, previous to filling in the border. Having trod this tolerably firm, the bulbs should be planted singly, or in threes if plentiful and it is desired to furnish the border quickly. In the latter case, each clump should be planted about a foot apart, and if the border is of such a width as to require a double row, the plants in the second should be alternate with those in the first. In planting, a handful or so of sharp sand should be placed round the bulbs to keep them from rotting. If planted now, or at any time during the winter, it will be necessary to protect the bulbs from severe weather by applying a good coating of half-rotten leaves, or some other unobjectionable-looking material, so as to form a neat-looking and safe kind of protection against severe frost. Nothing further will remain to be done till the plants begin to push forth their new leaves, which they do rather early in the spring, and upon the freedom with which they send forth these during the summer the abundance or otherwise of bloom in the autumn, in a great measure, depends. When once they get fairly into growth, they should have plenty of assistance during dry weather, by giving them an occasional soaking with clear water, and from time to time with liquid manure, as it may be required. The object that must be aimed at is a full and free development of leaf-growth; and, this accomplished, an abundance of flowers is sure to follow. As soon as the foliage ripens off, it should be carefully removed, and the border cleaned and neatly raked over before the blooms begin to protrude through the soil, or they will become injured. It is rather unfortunate that this beautiful Lily should flower only when it is perfectly leafless, as the foliage of any plant sets off its own flowers much more effectively than any others that can be substituted. When using cut blooms of the Belladonna, I have sometimes had leaves from Amaryllis to dress with, as these are the nearest in form and appearance to their own, and, therefore, associate best with them. When these cannot be obtained, a very good substitute may be found in the leaves of the Day Lily (Hemerocallis), or even the Iris. J. Sheppard.

Old-fashioned Border Flowers.—I have been lately reading Hill's "Eden" (1757). It is an interesting book, and the author was evidently a good gardener. The plants that are figured and recommended are well selected, and, for the most part, can easily be identified, though the names of 1757 are very different from those of the present day. I have, however, noted some on which I should like to obtain further information, which some of your readers may be able to give. Fringed Narcissus (p. 184)—This is evidently N. minor, but the peculiarity is that it then flowered in the second week of December. The double Golden Crocus (p. 269)—This I should like to see. It is the double of the common yellow, but "the beauty is incomparably greater. The segments become numerous, and their colour a yet brighter yellow than in the single flower." Proliferous Mountain Crowfoot (p. 193) and Proliferous Scarlet Anemone (p. 427)—Monstrous proliferous forms of the Ranunculus and Anemone. These I suppose to be lost. Double scarlet Lily (p. 439)—This I have no doubt, from the figure and description, is the double Tiger Lily. It is thus described—"the colour is a fine deep scarlet, covered with spots of a dusky, but not disagreeable, red." If I am right, then the Royal Horticultural Society were wrong in giving Mr. Wilson a first-class certificate in 1870 for a new plant which was in cultivation (and apparently not uncommon) in 1757.—Henry N. Ellacombe, *Bitton Vicarage.*

Culture of the Calceolaria.—Complaints of late years have been prevalent as to the difficulty of growing successfully this all but indispensable flower-garden plant. In many cases, however, I am of opinion that failure ought to be attributed to spring mismanagement, as we not unfrequently find the roots confined to small pots, exposed in the open air to cold winds and hot sunshine alternately. My practice for many years has been to root my cuttings under hand-lights in the open air, where they remain with only the protection of a mat or a little straw during severe frost. By the beginning of April I have them removed to beds prepared for them, in which they remain till bedding-out time has arrived, when they are planted with large balls of earth and scarcely experience any check. Calceolarias require the beds to be well manured, and, should the summer months prove dry, an abundance of water is necessary, which may to some extent be dispensed with by mulching the ground with short Grass from the lawn. By this means I have never failed to secure healthy growth. Tagetes signata pumila has been brought forward as a substitute for the Calceolaria and strongly recommended, and no doubt it is a useful plant in dry situations where the soil is shallow; but, in depth of colour, it is very inferior to the Calceolaria, and, besides, its odour is offensive.—Alexander Cramb, *Tortworth Court, Gloucestershire.*

Preserving Spring-flowering Plants in Summer.—Having no shady spot in my flower garden, where the soil is light and sandy, I have frequently lost nearly the whole of my Polyanthuses, Daisies, Gentianas, &c., during the hot summer months. As soon therefore as my plants had done flowering last spring, I removed them into one bed, planting them 18 inches one from the other in rows, and the same distance apart. On the 12th of May I planted beans of the Castor-oil plant in the same bed, which this ornamental foliage plant soon completely covered with its glossy foliage, beneath which I find my spring flowering plants in the healthiest possible condition, some of the Gentiana acaulis already showing bloom.—John Biddles, *Loughborough.*

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Sternbergia lutea.—In the herbaceous grounds of the Huntingdon Nurseries, I noticed, the other day, a bed of this charming hardy autumn-flowering bulb. Amidst the wreck made by the rains and frosts of autumn, it had a peculiarly cheerful and pleasing effect.—E. Hobday.

Arctotis aureola.—This, which has silvery leaves like those of Cineraria maritima, and immense deep orange flowers like those of a Gazania, has been very handsome this season on my rock-work. It gets killed by severe frosts, so I take it up and winter it in the greenhouse.—H. Harpur Crewe, *Drayton-Beauchamp Rectory, Tring.*

Viola palmænsis.—This free-growing and pretty species of Violet is a great autumnal bloomer, being full of flowers throughout October, as well as earlier in the year. By the way, a good collection of the species, or so-called species, of Violets would be very interesting. Have any of the readers of The Garden Viola altaica in flower?—V.

Androsace lanuginosa.—Lovers of Alpine flowers who have found this troublesome to cultivate, will be interested to learn that it is not always so hard to please. There is a tuft of it on a border in the College Gardens at Dublin, planted nearly twenty years ago, which has flowered abundantly throughout the summer, and is yet (Oct. 19th) in flower.—R.

Blue Hydrangeas.—In order to obtain these dissolve half-a-pound of Alum in a gallon of water, and bottle it off; then, as soon as the flower-trusses are visible, dilute and give the plants a dose of the mixture every week till the blossoms have expanded. This I have found to be sufficient for a plant in a No. 1 pot carrying upwards of eight trusses of bloom.—S. Rogers.

Ampelopsis Veitchii.—This is an interesting creeper on walls. A piece of wall on which a few plants were lately planted is now beautifully covered. The directions that the different shoots have taken are very singular. Often this plant may be seen with its shoots growing northward on the walls—from the sun instead of towards it, as most plants grow.—Q.

Hybrid Gloriosa.—Mr. Wilder has succeeded in crossing the Gloriosa with the Japan Lily. The hybrid is now in bloom, and is creating great interest. It is so rare that genera supposed to be so distinct have been brought together in this way, that the event will be quite an interesting one to science as well as to cultivators.—"Gardener's Monthly." [Our friend Mr. Meehan is usually more explicit and satisfactory in notes of this kind, and we hope that he, or others, will soon satisfy the curiosity that many plant lovers must feel in reference to this subject.]

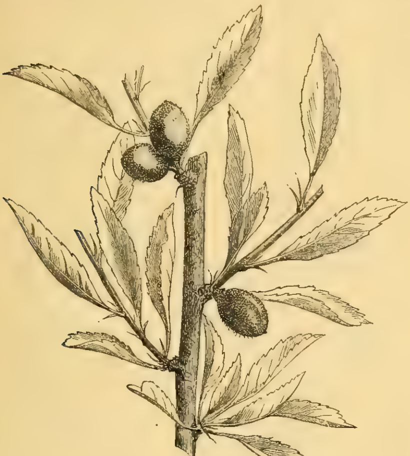
Rose Plants by Post.—Mr. E. Y. Yeas, of the Cascade Nursery Co., Richmond, where Roses are a speciality, in a letter to the "American Agriculturist," mentions that in April last he sent Roses by mail to Honolulu, Sandwich Islands, and that they arrived safely, and have since grown well.

TREES AND SHRUBS.

BOISSIER'S ALMOND.

(AMYGDALUS BOISSIERII.)

This forms a bushy shrub, the branches of which are somewhat erect, long, and slender. Its leaves are elliptic, thick, and coriacious, deep green above, and glaucescent beneath, from three-quarters of an inch to an inch in length, and about a quarter of an inch in width. The flowers, which are sessile and solitary, are of a pale flesh colour, shading off to almost white. The fruit, which is covered with short hairs, ripens about the middle of July; it is furnished at its base with small brown scales, which form a kind of calyx that usually becomes detached before the fruit is ripe, leaving it bare. This Almond was raised from seeds sent from Asia Minor, under the name of Amygdalus orientalis, a variety to which it bears no resemblance whatever. It is an entirely new kind, apparently allied to pedunculata, from which it may possibly have sprung, although it is quite distinct from that kind. In April, A. Boissierii is strikingly effective, owing to the multitude of flowers with which all parts of it are covered. F.



Boissier's Almond (Amygdalus Boissierii).

FALL OF THE LEAF IN VARIOUS LATITUDES.

In Dr. Ascherson's report on the vegetation of the Lybian Desert, published in the "Botanische Zeitung," there are some interesting notes on the fall and renewal of the leaves of deciduous trees. The observations chronicled by Dr. Ascherson agree almost entirely with our own experience. On his outward journey he traversed 25° of latitude in less than a month, which gave him an excellent opportunity for studying the conditions of the same species under very diverse climates. Thus, for instance, in the plains of Lombardy many deciduous trees, and especially Morus alba, were still partially covered with foliage on the 19th of November, the same species having long previously shed their leaves in Germany. In a similar manner, the Fig trees in Lower Egypt (31° N. lat.) were partially clothed with foliage at the beginning of December, and in Upper Egypt (27° N.) were still in full leaf, whilst already, on the 24th of November, they were quite bare in the Apulian Plain (41° N.). On the 11th of December the Pomegranate trees in the gardens of Siout were in yellow leaf; and on New Year's Day, 1874, the Apricot trees at Farafreh were still in their prime of green leaf. Hence, one might readily imagine that, on approaching nearer the equator, these same species would exhibit no interval between the fall and the renewal of the foliage, and thus to all intents and purposes become evergreen. But this phenomenon was only verified in the case of the little cultivated Peach tree of the oases, in which it may not be constant. Moreover, the Peach tree shows the same tendency in mild seasons with us. In the oases, at the beginning of March, when the trees began to blossom and make new growth the old leaves were still fresh and capable of assimilation. All other deciduous trees and shrubs cultivated in the gardens of Kasr Dghakel (20° 45′ N. lat.), including the Grape Vine, Apricot, Apple, Pomegranate, Plum, Fig, Mulberry and Willow, had lost their foliage on the arrival of Dr. Ascherson, or became leafless before the end of January. It should be mentioned that the fall of the leaf in this region does not proceed with the same regularity as at home, for it is not unusual to see quite naked and fully-clothed trees of the same species standing side by side. Again, the presence of abundance of moisture has the effect of enabling the trees to carry their old foliage longer, and put forth new leaves earlier, than trees growing in drier situations. And some of the Willows growing by water were quite evergreen; that is, after the manner of the Peach trees mentioned above. But the Apricot, one of the most abundant trees, rarely retained even a few scattered old leaves on the appearance of the flowers. The same was observed of the Grape Vine, Fig, and Mulberry. By February 20 the Apricot trees were in full blossom, and by March 10 in full foliage, so that there was only an interval of four or five weeks between the fall of the old foliage and the complete development of the new. The Apple and Plum behaved in a similar manner, the Pomegranate was a little later, the Fig next in order, and finally the Mulberry; whilst the same trees in a reverse sense, lost their leaves first. From the preceding notes it seems that the fall and renewal of the leaf is an essential constitutional peculiarity, which is modified by climatic conditions, but not entirely subject to them.

THE TRUFFLE OAK AND TRUFFLES.

In a letter to the "Practical Magazine," the Abbé Moigno writes:—Some astonishment may be manifested at my introducing here the subject of Truffles, the favourite tuber of Parisian epicures, but I think in so doing I am furthering the interests both of England and France. During my travels in 1857, I happened to meet with an eminently intelligent mountaineer, M. Ravel, of Montagnac, Department of the Basses-Alpes, who had made a double discovery of some importance. He had found, first, that the Truffle, that precious tuber, which is now paid for at the rate of 16s. the lb., grows in preference round the hairy roots of a particular species of Oak—Quercus pubescens, or Q. robur, or Q. lanuginosa. Secondly, that the Truffle grounds are frequented by a particular kind of fly, which M. Ravel supposed to engender the Truffle by pricking the roots of the Oak, in the same way as the insect Cynips is known to engender the gall-nut by pricking the stalks of the Oak leaves. This genesis of the Truffle has, however, not been confirmed. It is more probable that the Truffle-fly does not engender the tuber, but that it is attracted by the perfume, and that it deposits its eggs in it, which, having developed later, causes its decomposition. But the theory of the Truffle Oak remains, and constitutes one of the conquests of science. It is absolutely certain that the Truffles grow better, and in greater abundance, at the foot of the Pubescent Oak than anywhere else, and this fact has already become the starting-point of an important industry. Already, in the neighbourhood of Montagnac, nearly 1,500 acres have been planted with these Oaks, and the produce in Truffles has fully answered the expectations of the planters. M. Ravel has himself planted extensively, and he has found that a small piece of ground of only about 3½ acres has given him within a few years over £500 worth of Truffles, and he told me a few days ago, at St. Denis, that he would not take £100 for the present year's produce of the same piece of ground. Here is fortune, and within easy reach! Montagnac is but a few miles from Riez, in a most picturesque district, and possesses a mild and delicious climate. It is situated in the midst of a high table-land of from nine to twelve miles in diameter, the soil of which, at present barren, is admirably adapted to the growth of the Quercus pubescens, and, consequently, of Truffles. This is what I, therefore, recommend English capitalists to do—to go and seek these incomparable Truffles from the Department of the Basses-Alpes, as they seek their fine wines from the Gironde, from Sicily, from Madeira, and from Spain and Portugal. There are splendid operations to be made. M. Ravel will furnish all necessary information, and will supply acorns or young plants if required. In five or six years the trees will have engendered the Truffles, the produce will be abundantly remunerative, and will pay all the expenses of plantation, &c. The Truffle Oaks must be planted at some distance apart, in rows, as in orchards. Nothing would prevent other fruit-plants or vegetables from being planted between them at the commencement, so as to cover a portion of the ground.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Houses and Pits.—Where convenience exists for growing Cucumbers through the winter, there is not so much difficulty in managing the plants as to deter amateurs from attempting their cultivation. Cucumbers are always held in high estimation, and, if no separate house is available, 8 or 10 feet at the warmest end of, and divided off from, a pit or house, where a temperature of 65° at night can be kept up during the winter, will answer the purpose. Unless the temperature mentioned can be maintained it is no use attempting their cultivation as it will lead to disappointment. The plants may be kept alive with some degrees less, but will not produce fruit worth calling such. If seeds or cuttings were put in some time ago they will now be strong plants making considerable growth. They must be trained close to the glass so that they may receive every possible ray of light, and must not be allowed to get too much crowded with shoots. No more leaves than there is space for should be allowed to remain; for, if they one overhang another, all are liable to become weak and enfeebled, so that, when the short days arrive, they rapidly go off, and the plants become useless. As fast as the roots protrude through the surface of the soil add a couple of inches more; this is much better than applying large quantities at a time, as it ensures the whole mass of earth being fully occupied by the roots. Give enough water to keep them in a thriving state, but not nearly so much as during the summer time, when the plants absorb almost an unlimited quantity. Saturation of the soil now would be fatal to them, and less moisture in the atmosphere is now necessary. In order to keep them clear of insects they should be very slightly syringed once a-day, and early enough in the afternoon to enable the leaves to get dry before nightfall. The water for both syringing and root application ought to be used at a temperature of 80°. If grown in boxes or upon shelves standing a short distance above the pipes they will get enough bottom-heat without any special arrangement for giving them extra warmth at the roots. January and February are the two months when Cucumbers are the most prized; to have the plants in bearing condition at the commencement of the year it is necessary that they should not be allowed to bear now; consequently, all fruit as it shows should be pinched off so that the strength of the plants may be husbanded as much as possible to carry them through the time when their growing powers are at the lowest ebb.

Cauliflowers and Broccoli.—One of the best vegetables for this time of the year is Veitch's Autumn Giant Cauliflower. It is not only excellent in quality, but the plant, being robust, produces a great weight of crop upon a given space. The heads are compact, white, and remarkably tender, even when they have attained a large size. It thrives well in almost any kind of soil, without the assistance of so much manure as is required by some sorts. Where sowings were made at two or three different times, as advised in spring, the first will have been fit for use some time back, and the successional sowings will furnish a supply almost to the end of the year, but, to ensure this, the crop will require some attention. In this variety the leaves do not turn inwards to protect the heads in the least; on the contrary they leave them fully exposed to the weather. For this reason it has not found favour with some growers, but we find it very easy to supply this want by drawing the leaves together and tying them round with a piece of bast. This should be done when the plants are dry, and as soon as the heads begin to form. They should not be tied so tightly as to injure the leaves or exclude air and light, otherwise they become blanched and decay. By using the means just recorded, the heads will escape unscathed from the effects of 8° or 10° of frost. Later in the autumn, when an open shed, in which there is a fair amount of light and air, is to spare, some ordinary soil may be put into it, and a number of plants, the heads of which have attained a usable size, may be placed in the soil, but not too thickly, or the leaves will turn yellow and injure the heads. If this is done in succession as the plants form heads, there will be in hand a supply of Cauliflowers to fall back upon should severe weather set in early. Frames or pits are of course better than a shed in which to keep them, but these are generally required for other purposes. The practice of taking up Cauliflower or Broccoli in autumn when nearly fit for use, and hanging them head downwards in a shed or other building, is not good, for, although they will keep for a time in that way, they get tough and inferior compared with such as have had their roots in moist soil. The later crops of Broccoli that are intended to come in during winter and spring, should at once be laid in order to prepare them for enduring severe frost. The object in laying Broccoli is twofold:—First, to check growth; disturbing a considerable portion of the roots naturally has the effect of hardening and solidifying the whole plant, and of enabling it better to withstand severe weather. Secondly, to place the plants in such a position that the sun, during alternate frost and thaw, will not get to the hearts, as these suffer more from frost in the night after being thawed by the sun in the day than when continuously frozen. For this reason the heads should always be laid so as to face the north or west. To acccomplish this, if the rows run east and west, commence on the north side of the first row, and take out a spit of soil just the width of the spade, so as to form a trench within 2 or 3 inches of the stems of the plants, laying the soil, as the work proceeds, on the side away from the row. This will necessarily remove it from the roots, no more of which should be broken off than can be avoided. All the plants in the row should then be regularly bent over, until their heads rest on the ridge of soil taken out of the trench. When this is done, commence with the next row, taking the soil out so as to form a similar trench, and laying it in a ridge upon the stems of the row of plants bent over, so as to cover them right up to their bottom leaves; and, in this way, proceed until the whole is completed. If the rows stand north and south, the work must be begun on the west side. By this process, as will be seen, all the roots on one side of each row, and a portion of those on the other, are considerably disturbed. This will cause the leaves to flag a good deal for a week or two, which has the desired effect in checking growth. The more vigorous and large the plants, the greater is the necessity for thus preparing them for winter. In light soils, where they can be got up without much mutilation of the roots, should it be desirable to get the ground ready for some other crop before the Broccoli is off in spring, they may be taken up altogether and laid in some more convenient place, lifting them, as far as possible, with all their roots intact. Where Broccoli is properly managed in this way, it is only during exceptionally severe winters that it gets destroyed, and the drier the land is the more frost the plants will bear without injury. The length of time during which this vegetable affords a succession, at a period of the year when there does not exist much variety, makes it worth while to do all that is possible to preserve it.

Turnips, Carrots, and Onions.—Late crops of Turnips should be gone over and hand-weeded, as Chickweed, Groundsel, and other annuals will continue to grow and seed, if not removed. It is now of little use to hoe such weeds up and leave them, as they take fresh root directly, through the insufficiency of solar heat to kill them. Autumn-sown Carrots, to stand the winter for spring use, should also be kept clear of weeds, and thinned out sufficiently to allow them room to grow; as they will be used whilst small, 4 or 5 inches apart in the rows will be sufficient. Tripoli Onions may now be planted, and should be lifted with a trowel or small fork, so as to preserve all the roots unhurt, and this cannot be accomplished if they are pulled up. They ought to be planted with a dibber, in rows 14 inches apart, a distance of 3 inches being left between the plants in the rows; this will allow for losses in the winter, but, should all live, they can be thinned out in the spring, so as to leave them 9 inches asunder. Care should be taken not to put them in too deep, the roots and the base of the plants should be just covered, so that they may be held in an upright position. If the weather is dry give them a moderate watering at the time of planting. These transplanted Onions are less liable to injury in a severe winter than those that are permitted to remain where they were sown; they also often make finer bulbs. They are much esteemed for cooking purposes, on account of their mild flavour, and the larger they are grown the better they are in this respect, consequently a good piece of ground should be selected, which must be deeply dug and well broken, plenty of manure being added. All these operations should, so far as possible, be carried out when the soil is dry, for treading upon it when in a wet state does much injury.

The Flower Garden and Pleasure Grounds.

The earliest frost experienced here during the present autumn occurred on the night of the 11th; and, although the depression of temperature was inconsiderable (30°), yet, owing to the damp state of the soil, and of the plants in the beds, the flowers in the garden were completely destroyed. In most cases tender plants were considerably injured, without, however, being killed outright; but it was obvious that, in the case of plants intended to be preserved, immediate protection was absolutely necessary. In all instances where it is intended to plant the beds with spring-flowering plants this should be done with all possible despatch, in order to allow the plants used for the purpose time to become somewhat established in the beds before very cold or inclement weather sets in. The plants which may be used for this purpose may consist of various dwarf hardy evergreen shrubs and spring-flowering herbaceous plants of various kinds, together with early flowering bulbs, such as the Hyacinth and the Tulip, and the sooner all such are planted the better, so as to induce early flowering, and thereby render the parterres gay as early in the season as possible, as well as to have the bulbs ripened sufficiently early, in order that they may be taken up in time to make room for the summer bedders. In all cases where it is not intended to pursue any system of spring bedding the flower beds and borders should nevertheless be at once freed from the remains of dead and decaying plants, and the soil of the beds should be deeply dug, in order that it may receive the full benefit of the winter's frosts. Very much has been written and said against the unsightly appearance which the flower garden generally presents during the next five or six months; and too much can hardly be said against the practice of allowing the remains of the summer bedding plants to disfigure the beds for the greater part of the winter. But, on the contrary, where the remains of such plants are at once cleared off, the soil of the beds dug over, the margins of beds and walks neatly trimmed, with the surrounding turf closely mowed, well swept, and frequently rolled, a neatly designed flower garden, under these circumstances, can hardly be considered as unsightly, even in the absence of flowers, during the winter months. Where it happens, however, and this is frequently the case, that the flower garden is near to, and seen from, some of the principal windows of the mansion, the beds, if possible, should not be allowed to remain unfurnished at any season of the year; and, in all such cases, it is, of course, necessary to keep the soil of the various beds in good condition by the occasional introduction of fresh materials of a rich and fertilising nature. As, in carrying out the two systems of spring and summer bedding, each bed and border has, as it were, to produce two crops annually, the fertilising material for this purpose should be prepared during winter by being frequently turned, and should be applied to the beds as soon as the spring-flowering plants and bulbs are removed. The numerous varieties of bedding plants vary considerably in their requirements as regards the quality or richness of the soil, and the Calceolaria and Verbena would probably flower profusely in a rich soil, which would induce the Pelargonium and other species of bedding plants to run too much to leaf—*i.e.*, to grow too luxuriantly, so that this circumstance should be borne in mind during the preparation of the beds for the different species of plants likely to be used. No time should now be lost in taking up bulbs and tubers of such plants as Cannas, Dahlias, Gladioli, Tigridias, Commelinas, Marvel of Peru, &c., which, as soon as they have been well dried, should be stored in some secure place out of reach of frost. Cut down the dead and decaying flower-stems of all kinds of hardy herbaceous plants, including Hollyhocks, and any of the latter which may be scarce or valuable should be lifted and potted, so to remain during the winter, and for the purpose of propagation in spring. Rooted cuttings of choice Pansies, Carnations, Picotees, and plants of the same description should now be potted, and seeds of the various kinds of ornamental trees and shrubs should be collected as they become ripe, as, for example, the various kinds of Acorns and Chestnuts, which may be sown at once; while smaller seeds, or those likely to be injured by spring frosts while germinating, had better be thoroughly dried, and stored away until the beginning of March. Keep as far as possible the principal walks, lawns, &c., free from falling leaves, worm-casts, &c., and let them be frequently well rolled. The present is a trying time for bedding plants of most kinds, damp being quite as injurious to them as frost; so that they should be frequently looked to, and all decaying leaves, or matter of any kind likely to harbour damp, at once removed. Give air in abundance whenever the state of the weather will permit; and this should be occasionally accompanied by brisk fires to thoroughly warm the pipes or flues, in order that damp may be driven off, and the stagnant atmosphere of the structure renewed. Give water to the plants when really necessary, taking care at the same time to avoid, as far as possible, wetting the foliage.—P. Grieve, *Culford, Bury St. Edmunds.*

Fruit Rooms.

As these are likely to be unusually full this season, daily attention to picking over of the fruit and ventilation will be required. To our cost, we too often imagine that when the fruit is gathered and safely housed all is right, and that a continuous supply will be maintained without further trouble; but this is a mistake, as good preservation can only be ensured in proportion to the labour bestowed on the fruit-room. The fruit should be spread out as thinly on the shelves as space will allow, handling every fruit gently, as the slightest bruise predisposes it to decay. Of course, it should only be housed in dry weather, and even then the change of temperature will cause it to "sweat," the remedy for which is to ventilate freely, more especially for the first week or two after storing, till the fruit has got thoroughly inured to the temperature of the house. Our rule is (unless the weather is excessively wet and damp) to leave the ventilators open night and day for the first fortnight after all are housed, but afterwards to open them (in fine weather only) for a couple of hours in the middle of each day, at which time, the fruit should be carefully looked over, and every trace of damp, mould, or decay removed. Several kinds of Apples and Pears are much speckled this season, and as a large percentage of such fruits decay before they are ripe, a separate room or compartment for them would be a great gain, inasmuch as it would remove one source of decay, and, at the same time not injure the appearance of the general stock. As a rule, fruit-rooms in this country are not made nearly so interesting as they might be; for, in the first place, it is often thought that fruit may be stored in any old shed, room, or stable-loft, and, after a fashion, it may; but it would be much better to have a room into which visitors could be taken to see the fruit neatly arranged, and labelled with the name, date of gathering, and probable season of ripening. Such a room would, at all times, be a source of pleasure, and also highly instructive to the young men of the establishment and others not very conversant with fruit lore. I look upon the fruit room as the one great source of attraction during the season of the year (November, December, and January) when dulness reigns supreme. It is therefore necessary to make it as interesting as possible; and in doing this, we, to a certain extent, ensure the good keeping of the fruit.—W. Wildsmith, *Heckfield.*

Indoor Fruit Department.

Vines.—In Vineries cleared of their fruit, the ventilators should be left fully open for some time to come; the Vines are not injured in the least by being subjected to a few degrees of frost. Young Vines, which have grown strongly throughout the season, may not, in some instances, be thoroughly ripe yet; therefore, it is well to keep the atmosphere rather warm about them. But do not stop the circulation of the air by entirely closing the ventilators. Every endeavour should be made to get the wood of all descriptions of Vines perfectly ripened, as on this chiefly depends their success next year. Whereever late Grapes, especially Gros Colman, Alicantes, and Lady Downes, show the slightest tint of green, the temperature about them should be kept at 60° or 65°; but, even in this heat, they will not attain the finish of those which were quite ripe some time ago. Where the foliage is very plentiful round the fruit, some of it should be taken off, leaving the greenest leaves, and removing them principally from the extremity of the shoots. This is just the worst time for fruit damping, and every care should be taken to prevent it.

Pines.—It is advantageous in every way to arrange the plants according to their different stages of growth throughout the winter. Those in fruit especially, which generally need water oftener than others, can be better and more conveniently looked to if kept altogether, than when scattered here and there in two or three houses. The winter arrangements should now be attended to. All the Queens should be allowed to remain where they are for the present, or mischief may be done. Plants of all kinds in fruit should be collected together, and plunged in a bed which has been turned over, and a little fresh heating material added. Press the matter very firmly about the pots, and let the space between the plants be 2½ feet, or more if the plants are very large. Keep the largest at one end and the smaller ones at the other. Successional Cayennes, and other varieties, will also need re-plunging. Do not add much fresh material to the beds, as they do not require much forcing during the winter. Place the plants as far from each other as space will permit. They soon get attenuated when set closely together. Suckers, which have been attended to as previously directed, will not require any alteration; any, however, which may be crowded should be placed further apart. —J. Muir.

The Best Heliotrope.—By far the best of all the Heliotropes yet met with, says the "Florist," is one named Surpasse Guascoi. It is strong-growing, of erect habit, with very large corymbs of light-coloured flowers which open of a lilac colour, and fade off to a French white; these corymbs are often as much as 6 inches across, with an angular outline, the individual flowers being large, and the trusses very freely produced, and furnishing an abundant succession. The best of the dark-coloured varieties is M. Sement, which is of spreading habit, and has flowers of a dark reddish-purple, freely produced, in moderate-sized trusses.

Laburnum Poisoning.—Mr. Henry Willis, of 58, Old Broad Street, informs us that a horse was recently brought out of his meadow in very great pain and afterwards vomited very much. The same circumstance occurred on two subsequent occasions, but not on the following days. Feeling sure the horse must have eaten something poisonous, Mr. Willis examined most carefully a book upon the poisonous plants of England, and found that the Laburnum was poisonous. He then cut down all the branches of Laburnum within the reach of his horses. No harm has since occurred. This circumstance, he adds, fully confirms the paragraph in the "Times" of a recent date, of a number of children in the Forest Gate School having been poisoned by eating the root of Laburnum, supposing it to be stick-liquorice.

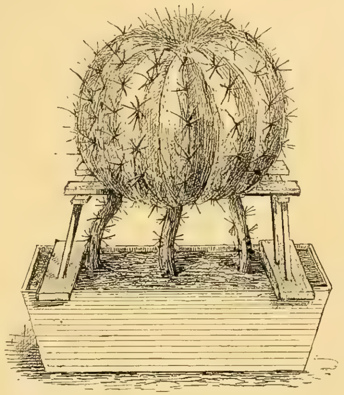
RARE SUCCULENTS AND OTHER PLANTS.

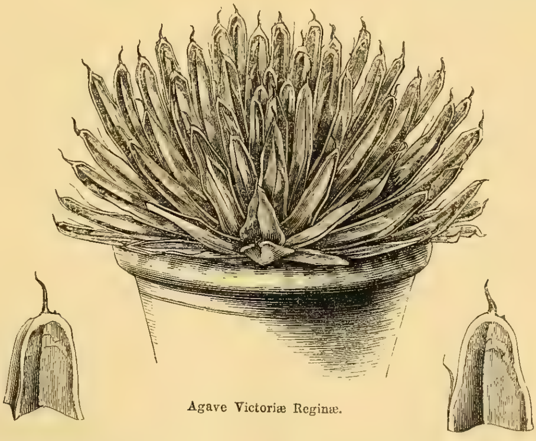
Few classes of plants are so permanent in character and so generally interesting as succulents, of which Mr. Peacock, of Sudbury House, Hammersmith, has brought together one of the finest collections in Europe. The Agaves and Cacti, especially, are unusually complete, and to the first-named group a most distinct and beautiful species has just been added, namely, A. Victoriæ Reginæ, of which we furnish a sketch, taken when the plant was exhibited at the last meeting of the Royal Horticultural Society, and unanimously awarded a first-class certificate. It is quite distinct from all others, having deep green leaves distinctly margined with white, and marked with the white membraneous edges of the young leaves. In general contour, the plant bears some slight resemblance to the A. filifera group, but the leaves of the Victorian Agave are distinctly three-edged at the apex, and terminated by a black wavy spine. Mr. Peacock has several examples of this Agave smaller than the one exhibited, and a pretty little specimen of it has just been added to the collection of succulents at Alexandra Park. Among other interesting features in the Hammersmith collection are many forms belonging to such variable species as A. horrida, A. Verschaffeltii, and the slender glaucous-leaved black-spined A. Besseriana. Some of these are so distinct in habit as to obtain separate names as garden plants, and are valuable for conservatory or greenhouse decoration, irrespective of their interest as examples of seminal variation. Many Agaves from seed are known to vary very much, and this is the case, not only with those just named, but also with others, such as A. (Littæa) juncea, A. Schidigera, and some of the larger kinds. One of the noblest habited of all the species here, however, is the massive deep green-leaved A. ferox, truly a most formidable plant, the edges of the thick fleshy leaves being bordered with irregular hooked spines, which point, some one way and some the other, so as to face all comers, while the long terminal spine is as sharp as a needle, and quite strong enough to bear the weight of a man. One form of A. Besseriana flowered with Mr. Peacock a short time ago, and is just dying down after having vainly endeavoured to produce young plants on the stem. A very distinct and robust-habited form is A. Gilbeyi, which belongs to the A. horrida type, but is very distinct in habit, the leaves being bright green, edged with curved broad woody spines. The Agave-house is itself worth more than a passing notice, being lofty, light, and airy, provision being made in it at the sides for suspending the smaller species and varieties by a hinged piece of tubular iron, about a foot in length, which is furnished at the end with a ring about 6 or 8 inches in diameter, into which the pot is placed. This simple arrangement is well worth adopting in ordinary greenhouses and conservatories where space is limited. Mr. Croucher's method of potting Agaves is worthy of special remark, as it is both simple, practically effective, and convenient. All gardeners are aware that re-potting or re-tubbing large Aloes is no easy matter; but Mr. Croucher's plan is simply to cut off the plant level with the soil; after which it is carefully lifted, and placed on another pot or tub filled with fresh compost. Thus treated, it throws out roots in a fortnight or three weeks, and, in a week or two more, they are generally found to have reached the sides of the tubs in which the plants have been placed. This plan is somewhat similar to the old-fashioned one of dis-rooting Pines; but, in this instance, severing the plant from the roots does not seem to influence, in any way, their blooming. Nearly all the species of Agave, and more especially the nobler habited kinds, are useful in subtropical gardening, and for ornamenting terrace walls, as they withstand rough winds better than most of the large-leaved plants. When thus exposed, too, they are much hardier than when grown indoors all the year round, merely requiring protection from frost to keep them in good condition. The collection of Cereus, Pilocereus, Echinocactus, and Mammillaria, at Sudbury House, are singularly complete, and there are one or two points in their culture which deserve notice. Those who grow Mammillarias and Echinocacti know that unless very carefully watered, especially during winter, they are apt to decay or turn brown at the base, just above the soil, and, in some cases, rot off altogether. One of the best practical remedies for this state of things is grafting, an operation extensively practised by Mr. Croucher, and with great success, plants so treated being nearly as fresh and clean at the base as at their growing points. Ordinary cleft grafting is the method employed; or holes may be made in the larger species of Echinocactus, and one or more stems of Cereus cut to fit the incisions as exactly as possible. One of the largest grafted specimens here, and probably the largest in cultivation, is an Echinocactus Pottsii, worked on three Cereus stems which support a head about a foot in diameter. The beautiful pearly dotted Echinocactus ornatus, a rather rare plant in collections, also succeeds well on any strong-growing species of columnar Cereus, as do also Echinocactus Scopa and its long-spined and crested varieties. This is one of the most vigorous and beautiful of all silvery-spined species, and one which well deserves culture as an ordinary decorative plant. Some of the neat habited Mammillarias are especially adapted for working on the slender-stemmed species of Cereus; among the examples thus treated here, we noted the following:—M. spinosissima, grafted on Cereus tortuosus, making a fresh and clean growth much better than when on its own roots; M. nivea longiseta, a long spined form of the snowy-spined Mammillaria, quite at home worked on a few inches of the rooted stem of the scandent night-blooming Cereus hamatus; this last is one of the best and most distinct of all climbers for leading up the rafters of a moderately warm greenhouse or plant-stove, and, if so grown, and grafted here and there with these little silvery-spined Mammillarias, one could scarcely imagine a

Fruiting plant of Ficus Cooperi.

prettier or more interesting object. M. Schiedeana, a pretty little plant, and M. bicolor cristata, a singular cockscomb form, do well on a Cereus stock, and form good companions to E. scopa cristata. The rare M. pectinifera rufispina is here represented by a large and healthy plant, worked on Cereus peruvianus, which is one of the best of all strong-growing stocks for this purpose. Pilocereus Williamsii, a rare and beautiful Cactus of the "Old Man" section, is growing well on the last-named stock, and Cereus tuberosus is equally healthy on C. tortuosus. An interesting species, Mammillaria formosa gracilis spina is strikingly effective, worked on a Cereus stock—its cross-shaped silvery spines being contrasted with bright crimson oblong fruits, which contain plenty of good seed, and which are very ornamental, as they remain fresh and bright for months. Seeds of these pretty little plants germinate readily sown on a pan of well-drained sandy earth, and the seedlings are found to vary very much from their parents in habit, colour, and other particulars. A plant of Cereus Monvillei here is fully 6 inches in height, and as beautiful as it is rare and distinct; also, the finest known specimens of the "Tooth-pick Cactus" (Echinocactus visnagus) in cultivation, the largest plant of which is nearly 2 feet in diameter, and armed at all points with formidable tooth-pick-like spines. Tall plants of Pilocereus senilis always attract attention here and elsewhere, owing to the profusion of long white hairs which crown their growing points. For a long time this species was the only one in cultivation, but there are now several others in Mr. Peacock's collection, including P. Williamsii, already named, P. Dantwitzii, and P. Peacockii, one of the neatest and prettiest in the group. Aloes, Gasterias, Haworthias, and other allied plants, are well represented in this collection, and, like the Cacti, have a light and airy house to themselves. Here we noted a plant of the old, but none the less beautiful, Gasteria verrucosa, fully 2 feet in diameter, and perhaps the finest specimen of the old and distinct-habited Aloe plicatilis now in cultivation—a plant finer even than the Kew specimens and those at Hampton Court. Mr. Croucher has succeeded in raising a fine crop of seedlings from the last-named species, crossed with one of the finest of all the Haworthias, from which good results are expected. A. ferox, one of the noblest of all the Cape species, is here represented by a vigorous specimen, and there are others of A. abyssinica, A. Salm Dyckiana, A. umbellata variegata, A. dichotoma, and others. A collection of Stapelias here is singularly complete, S. Plantii, S. europæa, S. hirsuta, and others, being in flower at the time of our visit, while the vigour of the plants is attested by the large crop of plump spindle-shaped seed-pods which many of them are bearing. In common with most other Asclepiads, these depend for fertilisation on insect agency, and the fœtid, carrion-like odour emitted by their flowers serves to attract the large carnivorous flies, which deposit their eggs in the centre of the flower, and, in so doing, often drag the pollen masses from their cells on to the stigmatic surface. Another house is devoted to miscellaneous succulents, such as Echeverias, Crassulas, Pachyphytums, Saxifrages of the large rosulate section, tender Yuccas, and the finer Mesembryanthemums. Here we noted several of the finest hybrids between Echeveria and Pachyphytum, these having been raised within the last few years in Continental gardens. Among these, E. pachyphytoides is like a strong-growing Pachyphytum bracteosum, but the leaves are flatter; and another seminal form from the same cross, E. p. rosea, is similar in character, but the leaves are more pointed, and show more of the glossy rosy hue of the Echeveria on its foliage. E. glauca-metallica is, as its name implies, a cross between E. glauca, now so much used in edging flower beds, and the large-leaved E. metallica. In habit it is exactly intermediate between its parents, and forms a noble plant for the centre of panels and similar positions in carpet beds. E. scaphylla is a robust hybrid between Pachyphytum bracteosum and the green-leaved rosette-shaped E. secunda being exactly intermediate in general appearance; but more vigorous than either of its parents. Among these hybrid Echeverias, are many in which this circumstance is, beyond question, most clearly noticeable, and it would be interesting to know if these bear fertile seeds, or whether their vigour is due to their sterility. At the last meeting of the Royal Horticultural Society, Mr. Croucher exhibited a robust young plant of the Australian Ficus Cooperi, which, apart from its bearing ornamental and edible fruits, is well worth culture as an elegant habited foliage plant. The specimen in question was scarcely 18 inches in height, yet it bore three reddish fruits spotted with dull yellow. The leaves are a foot or more in length, and of a bright glossy green colour, with purplish-crimson veins. Our illustration (p. 350), sketched when the plant was exhibited, shows the general contour of this Ficus, which is quite as suitable for ordinary decorative purposes as its allies F. elastica or F. Chauvieri. It may not be generally known that all three species may be propagated by grafting pieces of the young growth on the thick roots of the common Fig (Ficus Carica). Thick pieces of root, well furnished with fibres, grafted in heat, seldom fail. It was, I believe, Mr. Tillery, of Welbeck, who first recommended the system of propagating F. elastica some years ago, and I at once put it to the test—not so much on account of its utility, since these plants strike freely enough from cuttings, but because I was dubious as to whether any evergreen plant would succeed worked on a deciduous species as a stock.

F. W. B.


Echinocactus Pottsii.


Agave Victoriæ Reginæ.

THE FRUIT GARDEN.

ON SEEDLING PLUMS.

I shall be glad to compare notes with any reader of The Garden who may have made experiments in this direction. Many years ago I raised two seedlings from the stones of the Golden Drop Plum. After keeping them for several years one of them produced a few worthless Plums of a dark colour, and, as it was very thorny and otherwise unpromising, I uprooted it. It was at first the finest of the two plants, and I noticed that its seed-leaves were pointed, while those of the other were not so. The latter, in due time, produced some rather promising fruit of a reddish-purple colour, of good flavour, but rather deficient in juice; but, after a few years, the Plums it bore were not only more numerous, but their size and quality had improved. At this period of their history I read in an horticultural publication that the American fruit growers recommended trying the produce of a second generation with a view to further improvement. Acting on this hint, I raised six seedling plants from the stones of this Plum, and this year, out of the three that produced fruit, one, which turned out a yellow Plum, like its grand-parent, promises well, if the only two which it bore are any indication of its quality. They were round Plums, of the form and size of the ordinary Greengage; the stones were proportionately very small, and the flavour better than that of most of those produced in my orchard this year, which, although fair to look at, were, with a few exceptions, deficient in flavour. By these experiments it would appear that the offspring of the Plum does not necessarily inherit the colour of its parent. In the case of Chapman's Prince of Wales, raised from the Orleans Plum, Rivers's two excellent Plums, the offspring of the Précoce de Tours, and others, the colour of the seedling has resembled that of the original Plum. But, as regards flavour, I have observed one peculiarity. I believe it will be found that the Gage family may be expected to transmit to their seedlings the flavour that distinguishes them from the other varieties of the Plum. I have myself raised only one Gage seedling, but the fruit (which is produced very sparingly) was unmistakeably a Greengage in flavour, but neither so good nor so large as the ordinary sort. I have also another tree that was raised from a Greengage stone. This tree, unlike the one I raised myself, is a good bearer, and so like the recognised Greengage that it can hardly be distinguished from it. I have also true trees, which I planted in a hedge, that were suckers from a tree growing in a neighbour's garden, and there are many such in this village, all having the peculiar Greengage flavour; but, as a rule, they do not bear well. With reference to the bearing qualities of trees raised from suckers, I can mention two instances—those from Chapman's Prince of Wales, which were said to bear well in the nurseries at Brentford End, where that tree was raised, and I was able this year to notice the same result in a sucker from the Golden Drop. The tree itself I happen to have growing on its own roots. It was sent to me by a neighbour of mine, who was leaving England, and who wished it to be preserved. The method he used was that of taking off a ring of bark at the base of a vigorous shoot proceeding from an old tree of that sort, and surrounding it with rich earth, confined in a cincture of canvas. From this, when the roots had struck into the mould, it was separated and transferred into a border, and soon became a strong well-grown tree. Besides the Muscle and the Morocco Plums, that flourish on their own roots, we have here some varieties of the wild Plum which make an excellent preserve, and, in general, produce a fair crop. In the "Transactions of the Horticultural Society," that were published in the year 1826, there is an interesting paper, by the celebrated Thomas Andrew Knight, on the qualities of some newly-raised fruits. It would appear, however, from what he states of the best way of hybridising Plums, with a view to obtaining good results, that, in the instances he brings forward, he did not meet with better success than has resulted in the chance productions I have mentioned above, and for which any praise that is due must be given to the bees, and other insects, to whose manipulations alone the success must be attributed. I have this year saved about sixteen stones of my seedling Plum raised from a Golden Drop stone, all of which I would gladly present to anyone among your readers who would like to experiment with them. In colour, size, and form, the fruit resembles Rivers's Autumn Compote; but is, I think, its superior in flavour. B. S.

FRUIT-GROWING AT THORESBY PARK.

All kinds of fruit are ably cultivated at Thoresby—Vines and Pines especially so. Most of the Vines are young, and many of them have not been fruited yet. The largest Vinery is a lean-to, 124 feet in length, with 18-feet rafters. The Vines in this house are two years old, and will be fruited next season for the first time. The varieties are both late and early, and many fine Grapes are grown in this mixed fashion. The canes are planted about 2½ feet apart, and the kinds which are represented most numerously are Duke of Buccleuch, Gros Guillaume, Pearson's Golden Queen, Lady Downes, Black Alicante, Gros Colman, Syrian, Trebbiano, Waltham Seedling, and Venn's New Black Muscat. I observe that some of the roots have two leading stems, others only one, and each cane is stopped at the top of the house. The wood of all the Vines is remarkably strong, short-jointed, and well ripened, and gives promise of a splendid crop of fruit next year, and, indeed, for many years to come. In the same range of glass there are many more Vineries, but, owing to the amount consumed during the recent festivities in celebration of the coming of age of Lord Newark, there were fewer Grapes hanging on the Vines at the time of my visit than is usual at this season of the year; at the same time, late Grapes were well represented. Lady Downes and Alicantes were good in bunch, berry, and finish, and Syrians, Dr. Hogg, and other whites were, in all respects, excellent. Golden Champion is a great favourite at Thoresby. It has always produced and finished large handsome bunches and berries, without spot or blemish of any kind; and Lord Manvers is so highly pleased with it that he has lately given Mr. Henderson instructions to augment the number of this variety of Vine. One large house was planted with every kind of Muscat this spring, and the wood of these have quite over-run the house in every direction, the leading stems having made remarkably thick, firm, short-jointed wood the first season. In this house they were planted about the same distance from each other as the other young Vines. Mr. Henderson intends fruiting every alternate Vine heavily for a year or two, and then rooting them out to give more room to those which have been kept in reserve. The entire range of houses appeared to be in perfect order, and no insects of any kind had ever been allowed to gain a footing. The soil in which the Thoresby Vines are grown is unusually light, pure sand forming about one-third of the border compost. It is quite visible on the surface, and is present in the same proportion to the bottom; no other soil, in fact, can be obtained conveniently, and the utmost care, therefore, is necessary, in the preparation of the borders, to produce such results as are here apparent. The earliest Grapes are cut from Vines in pots. There is a span-roof house with a heated bed for soil on each side of the pathway, in which young Vines are planted, that are to be fruited early for a year or two, as a substitute for some of those in pots. The Pineries are four or five in number, most of the plants being grown in pots plunged in tan. There is one large house in which a centre bed is planted; when I inspected them, every plant appeared an excellent example of good culture. There were many Smooth-leaved Cayennes in fruit, which will ripen successionally from the present time till after the new year, many of the fruit weighing 7 and 8 lbs. Plenty of plants were just starting into fruit to keep up the supply until the early Queens come in, whilst successional plants looked as if they would produce heavier fruit than those named. Cayennes, Charlotte Rothschilds, and Queens were as thick around the neck as the mouth of a 7-inch pot, and where strength is thus apparent, the result is never problematical. Thoresby Queen was raised here, and is grown to some extent. It is quite different from the common Queen. Its habit is dwarf, and the leaves are mealy white, like the foliage of Echeveria pulverulenta. The fruit is pyramidal in shape, like that of the Providence. The crown is always small, and the flavour not so good as that of the old Queen. Prince Albert is another one which is grown in quantity, and looks well. The fruit of this variety, to my mind, is the handsomest of all Pines when properly swelled. The shape of the fruit is a perfect cone, and its colour, when quite ripe, a reddish-tinted golden. The crown is never disproportionately large. The suckers are here grown in pits, and all are in the finest possible health. The Pines are growing in the same soil as the Vines, and it is certainly different to what one is accustomed to see used in the successful culture of Pines. A span-roof house was full of winter Cucumbers. Melons were cleared out to admit of Begonias, Bouvardias, and other winter-flowering plants, being planted in the beds. Mr. Henderson finds such subjects bloom longer and more freely planted out than grown in pots. Figs of various kinds were bearing a splendid autumn crop. A few Peaches were still hanging, but these and Nectarines are principally forced early. The wood of these was not gross, but of that hard-looking, full-budded kind, which is far more certain of bearing fine fruit at any time. The Cape Gooseberry is grown more extensively here than in most places, a house being devoted to its culture. The treatment is somewhat different to that generally adopted, the fresh stock being made from cuttings every spring. They are planted out and bear large crops of fruit, which are principally used for culinary purposes. J. Muir.

NOMENCLATURE OF FRUITS.

During the last fortnight, I have been busy getting in and arranging my Apples and Pears—an operation which is done numerically and alphabetically. This brings the various classes very much together, *i.e.*, the Bergamots, Beurrés, Doyennés, &c., come together on the shelves. Any dissimilarity among them is therefore easily detected, and the process of examining and comparing the different kinds is greatly simplified. As one of the results of this examination, I have, like others, found that the Pear, miscalled Brockworth Park, is no other than one of my greatest favourites, viz., Bonne d'Ezée. The Brockworth is from trees bought in Gloucestershire. The other (Bonne d'Ezée) is from trees obtained from France; and I was selling fine maiden plants of it for 6d. each at the time when I bought the Brockworth. I do not know how far a man is justified in sending out fruit trees as new, when he cannot vouch for their being so. I, of course, propagated the Brockworth largely, while, at the same time, I had it under the name of Bonne d'Ezée. This was discovered as a wilding in Touraine, about 1788; and M. Jamin, of Paris, is said to have been the first who propagated it, and sent it out, under its present name. Liron d'Airoles called it Bonne des Haies, and M. Decaisne, in his "Jardin Fruitier," gives it the name of Belle Excellente. Let me also direct the attention of your readers to the respective descriptions of the two Pears, as given by the Pomological Director of the Royal Horticultural Society. Bonne d'Ezée is thus described:—Flesh, white, coarse-grained, . . . inclining to gritty, half-melting, and juicy, with an agreeable perfume;" and, it is added, "This is only a second-rate Pear, the texture of the flesh being coarse." The same authority describes Brockworth Park thus:—"Flesh, white, delicate, buttery, and melting, very juicy, rich, and vinous; and the Royal Horticultural Society gave it a first-class certificate in 1871." What reliance, therefore, can be placed upon such descriptions? Bonne d'Ezée is certainly deserving of all that is said of the Brockworth, and more; for it is, without doubt, one of our best September and October Pears, and attains, under favourable circumstances, a large size. This season all sorts of Pears are small here. I have also in my examinations discovered that the Strawberry called Dr. Hogg is no other than my special favourite Carolina superba. No wonder people bought this delicious Strawberry largely. But why had we to pay so dearly for it? In order to prove that I had made no mistake about the identity of the two fruits I wrote to the raiser of Dr. Hogg and obtained from him plants and foliage of that kind and compared them with what I grow under the two names, Dr. Hogg and Carolina superba, and I find that the plants sent me are identical with Carolina superba. Dr. Hogg's descriptions of both sorts, so called, are as follows:—*Carolina superba*—Fruit, very large; ovate, sometimes inclining to cockscomb shape, with an even surface. . . . Skin, pale red, extending equally over the whole fruit; flesh, clear white, very firm and solid, with a fine vinous flavour and rich aroma, equalling the British Queen. The plant is, however, much hardier, a free grower, and better bearer than the British Queen. *Dr. Hogg*—Fruit, very large; cockscomb shaped; skin, pale red; flesh, pale throughout; sweet, and with a very rich flavour, which remains long on the palate. The fruit is of the same class as the British Queen, and not distinguishable from well-grown examples of that variety; it ripens later than the British Queen, at about the same time as Elton, and exactly at the same time as Carolina superba. The plant is much hardier, a more abundant bearer, has the growth of the British Queen, but is more healthy and robust (?), and retains the foliage better through the winter. After this, need we be surprised at the chaotic condition of fruit nomenclature, and that it is burdened with such a multitude of synonyms? I have long ago unearthed the Pear called Benedictine, which was sent out as something surpassingly excellent; I purchased six trees of it for 30s., and found, in a year or two after that I had got an addition to my stock of Brown Beurré. J. Scott.

Merriott, Crewkerne.

Successional Peaches.—Will the following Peaches ripen in succession, viz., Early Louise, Crawford's Early, Alexandra Noblesse, Exquisite, and Lord Palmerston?—J. E., *Tenby*. [The list just given, according to my experience, is a good one. With me the Early Beatrice is the earliest ripening variety, but it is not so large or fine flavoured as the Early Louise, which ripens next to it. I should prefer Hale's Early York, an excellent American Peach, to Crawford's Early, which is a large yellow-fleshed sort, ripening in the end of August. Alexandra Noblesse is an excellent middle-season Peach, and not subject to mildew. Exquisite is a very large yellow-fleshed sort, but I should prefer Desse Tardive, which ripens about the same time or a little later. Lord Palmerston and Princess of Wales are two of the very largest and latest of Peaches, except the Salwey. They both ripen nearly at the same time, but I prefer Princess of Wales for its flavour and because it does not cling to the stone as Lord Palmerston sometimes does.—William Tillery.]

Vine Mildew and Ewing's Composition.—For several years I have had the Vines in two houses attacked with mildew just after the fruit has been set. Air has been given night and day, a brisk temperature maintained, damp and stagnation avoided, and both bunches and foliage have been well dusted with sulphur; yet, notwithstanding all this, the mildew continued to make progress. This season it appeared in my early Vinery about the usual time, just after the Grapes had set; and all our efforts to check it with sulphur were unavailing. Fearing it would appear as usual in the second house, I bought a few bottles of Ewing's composition for its prevention. I applied it according to the instructions received along with it, giving one good syringing before the Grapes come into bloom, and two others as soon as they were set; and the result has been most satisfactory. Not a trace of mildew has been observed during the season; and the Vines have ripened the best crop of Grapes we have had in the house for nine years.—Q. Read, *Pleasley Hall, near Mansfield.*

Grapes Damping Off.—I find that the Black Hamburgh and Muscat Grapes in my Vinery are damping off in large quantities. Is this to be attributed to the unusual humidity of the atmosphere, or to the effect of watering Ferns and other plants growing under the Vines? What remedy must I apply to check it?—E. D. Thomas, *Welfield, Builth.* [Vineries, in which late Grapes are hanging, should be kept as dry as possible. Plants requiring water should be placed elsewhere, and the damp air in them should be driven out by means of gentle fire-heat applied in the morning, when, if dry and sunny, a little air may be given for a short time at the top. The outside borders should also be protected from heavy rains.]

Grafting Bunches of Grapes.—This practice is by no means new; but from experiments which I have made I am inclined to believe that there is little advantage to be gained by grafting a number of bunches together. To see what size a bunch can be made to attain was not, however, my object, but to ascertain what influence one kind of Grape would have on another. A bunch of Foster's Seedling spliced to one of Lady Downes seemed to be flaccid and tasteless, compared with the same kind left alone. A bunch of Muscat of Alexandria grafted on a Trebbiano seemed to have little or no Muscat flavour in it. A Lady Downes "worked" on a bunch of itself, was unchanged in flavour and appearance. In order to have handsome bunches as well as increased dimensions by grafting, it is necessary to use small ties for training one of the bunches neatly over its companion, so as to maintain a symmetrical form. This must be done either before the bunch comes into flower or very shortly after the berries are set, but careful and steady hands must perform the operation.—M. Temple.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

The Prune Damson.—This little Plum always bears heavy crops here, and is the best of all for kitchen use and for preserving. Damson cheese made of this variety is excellent. I know not what we should do without a good supply of these little Plums.—R. Gilbert, *Burghley*.

Peach-house Borders.—Should I mix a portion of old mortar with the soil of a Peach-border? The compost I have prepared consists of equal parts of turves of light hazel loam and the strong soil of the kitchen garden, and having a quantity of old mortar I should be glad of advice from some of your correspondents before using it. My Peach-house is a lean-to, 40 feet long, with a south-west aspect. I shall plant three trees to cover the front trellis, and the same for the back wall. What are the best six tried kinds?—A. R. W.

Sure Cropping Apple.—For seven years past we have been favoured with four really heavy crops of Apples from the same tree, and three good half crops. The variety is Dutch Mignonne, a kind which keeps well until March. In mid-winter we use it for dessert; but it is most useful as a kitchen Apple, and in this its great merit lies; when cooked, its flesh does not fall down, like that of the Wellington, and it is not so tough and stringy; on the contrary, it keeps its shape intact.—R. Gilbert.

Melon A. F. Barron.—Through the kindness of Mr. Gilbert, I received a packet of this new Melon for trial last spring, and I can confidently recommend it as one of the best green-fleshed varieties that have come under my notice. It has a hardy, vigorous constitution, and will do well in a frame without much artificial heat beyond a little in which to start. It sets its fruit early and freely, and the flavour has been pronounced by all who have tasted it here to be first-rate. As regards weight, it varies from 3 to 6 lb., according as the plants are lightly or heavily cropped.—E. Hobday, *Ramsey Abbey*.

THE KITCHEN GARDEN.

NEW ZEALAND SPINACH.

In dry soils, where the ordinary Spinach quickly runs to seed during the hot months of summer, and where, also, the Spinach Beet, from its pale colour, is not appreciated, the New Zealand Spinach may be advantageously grown. If treated liberally, a small number of plants, comparatively speaking, will furnish a large supply of dark green leaves. In March the seeds should be sown thinly in pans or boxes in gentle heat, and should be afterwards pricked off into small pots, the usual treatment accorded to tender annuals being given to them till they are hardened off and planted out about the end of May. The seeds may be sown in a box or boxes in March, hardened off in May, and planted out without being potted off; but, if the weather in May is hot and dry, they will not readily establish themselves without a good deal of trouble in shading and watering. Any warm border or site will suit it well. Our usual plan is to open a trench 3 feet wide and about 8 or 10 inches deep, put in a layer of thoroughly decayed hotbed manure, fork it lightly in, and return a portion of the soil from each side of the trench, leaving the ground slightly concave, then put in the plants—using those potted singly—two rows down each 3-feet trench and about 15 inches apart in the rows. Although during August and September very frequent gatherings were made the plants have so far extended themselves as to measure 9 feet across, and that not in straggling growth, but in a complete thicket of shoots. Where there are not facilities for starting it in heat in March it may be sown out of doors in May, and if a little warm manure can be spared to give it a start, with plenty of room to develop its growth, a very profitable result may be looked for. E. Hobday.

THE "WORLD" ON SALADS.

Of the infinite variety of salads which can be made from wild plants—the Salad Burnet, the Ladies' Smock, the Stonecrop, the Sea Bindweed, the Sweet Cicely, the Buckshorn Plantain, and the Ox-eye Daisy—our people know next to nothing, and allow quantities of excellent food to be wasted on cattle. The Dandelion, which is a favourite salad in France, and a herb renowned for its virtue, we should be half-ashamed to see on our tables. Nothing will do for us but the most highly-cultivated kinds. First of all there is the Lettuce, which is of two sorts—the Cabbage Lettuce, known in France as the Laitue pommée, and the Cos Lettuce, which the French term the Laitue romaine. Of these—and there are endless varieties of either—we seem in England to prefer the latter with its long leaves, because it can be eaten by itself, while the French probably care more for the former. Then comes the Endive, in three classes—first, the broad-leaved or Batavian Endive, which the French call Scariole—a prime favourite; next the Curly-leaved Endive, which the French call sometimes Chicorée and sometimes Laitue frisée; lastly, the wild Endive or Succory (Succory being but the old English word for Chicory), which is called by the French Barbe de Capucin. Perhaps next in order of rank deserves to be mentioned the Celery—but we only use the bare stalk, whereas the French put the whole plant into the salad-bowl, from the root at one end to the leafage at the other. Even better is the Celeriac—that is a Celery with Turnip-like root, The Céleri-rave of the French and the Knott-sellerie of the Germans. The latter are especially fond of it, and go into ecstasies when they talk of it. In England although it may be cultivated with greater ease and at less expense than the common Celery, it is slighted, though, served up with a dash of Red Cabbage, it is particularly alluring. Then there is the Tomato salad; but for that matter Tomatoes are plentiful enough, and ought to be in everybody's reach. The wonder is how anyone who knows what a superb thing is a salad of raw Tomatoes can care to desecrate this glorious Apple by cooking it. But I should weary the reader if I went on to sound the praises of the Corn salad, the Beet-root salad, the Potato salad, the Salade de légumes; and of the minute accessories—the Tarragon, the Chervil, the spring Onions—which when cunningly applied give a gaiety and sparkle to the composition. It is necessary to conclude, and I conclude with the remark that there are salads in abundance, and with a little trouble we can have them in perfection.

Exhibiting Seedling Potatoes.—The point raised by Mr. Gilbert in his note on Fenn's International Kidney, as to the propriety of exhibiting seedling Potatoes in competing collections at shows, is one that fairly merits attention, although I say, at the outset, that I am unable to agree with his conclusions. The practice of exhibiting seedling varieties in that way is as old as are flower shows, and in all such classes as Pelargoniums, Fuchsias, Carnations Pansies, and many other subjects, seedling plants and cut flowers have always been held admissible. Indeed, it is by exhibiting seedlings in competition that the merits of a variety becomes known, and the raiser of any good thing finds his greatest reward in the prizes that such seedling is enabled to win. A raiser of Potatoes, for instance, naturally feels that if he can, with his seedlings, take prizes from old-named varieties, he ought not only to have the privilege of so doing, but he also feels that it is a fair and honourable way of displaying the merits of his productions. If other competitors have not such good sorts, that is their misfortune; and if the seedling raiser beats them in the show, they are not worse off than would be the case if some other exhibitor, having very superior tubers of some old kinds, did so. In any case the handsomest and best ought to win. I think Mr. Gilbert can recollect that at the great show at Birmingham in 1874 a well-known exhibitor exhibited six dishes of Peas, and took the first prize in the class, yet one of these dishes contained a variety not then sent out. What is right, therefore, with Peas can hardly be wrong with Potatoes. At the Alexandra Palace many dishes of seedlings were shown in the competing classes, so the case alluded to is not an exceptional one.—Alex. Dean.

Black or Underground Slugs (see p. 306).—Trenching the ground, every other year, 2 feet deep, generally keeps these pests down; where trenching is not practicable, choose a moist, warm evening, and strew the ground freely with bran, and some old Lettuce and Cabbage leaves cut up. About these they will collect in large numbers; have in readiness a barrowful of finely-sifted lime and soot, the fresher the better. Set to work as early as possible in the morning, and scatter broad-cast a good coating of this, which will speedily destroy slugs of any colour. This, repeated two or three times during the season, will completely clear the ground of these depredators.—W. S.

Winter Salads.—Chicory is often spoken of as an excellent winter salad plant; I have often grown it, but have never known it to be asked for. Again, Endive, which, when well blanched, certainly looks pretty, does not find favour with every one in consequence of its bitterness. I may be told that blanching removes this, which is true to a certain extent, but, even then, it is not to be compared with a sweet Cos Lettuce. Lettuces, of different varieties, are usually in daily demand throughout the summer and winter, and the supply may be easily maintained at all times of the year if the right varieties are grown. This, I think, only wants to be known to render their cultivation much more extended. My winter Lettuce is sown on the 7th of July, planted out in good rich land in August, and from these our winter salads are got daily; when the frost comes we cover the quarter with Bracken, which is light and airy, and an efficient protection. Should the snow fall heavily, we lift a few barrowfuls and take them inside. The variety used is Black-seeded Brown Cos.—R. Gilbert, *Burghley*.

Celery Fly (Tephritis onopodinus).—The ravages of this fly in this locality are very deplorable. I have sixteen rows of Celery, on which scarcely a leaf has escaped. It has also attacked Parsnips, but not with such destructive results as upon the Celery. I have found several in one cluster. They appeared first about the rainy season, in July. When fine weather set in, there was a cessation; consequently, the plants partly recovered. The second attack, about three weeks since, was far worse than the first, and, in my opinion, the plants will do no more good this season. I am inclined to believe that wet seasons are favourable to the depredations of this fly. I have heard of one remedy; that is, pinching the maggots. This has been tried, but has proved of no avail.—R. B. Fuller, *Fitzroy Park, Highgate, N.*

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

Poisoned Peas.—For selling a can of preserved green Peas, which upon examination proved to have been adulterated with crystallised sulphate of copper, a tradesman in Soho was fined by Mr. Knox 20s. and 2s. costs. The tin containing the Peas bore the label of a Paris house, and the seller pleaded that he had sold the article as he received it.

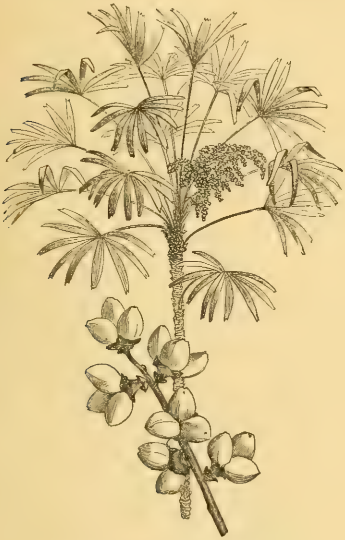
Tomatoes v. Wasps.—That Tomatoes have any power to keep wasps from fruit is very doubtful, inasmuch as in a Vinery in which the back wall was covered with them, the fruit was attacked by wasps just the same as that in another house in which there were no Tomatoes, and that for three successive years. This season I have not seen half-a-dozen wasps altogether.—S. Rogers.

Cucumber Daniel's Duke of Edinburgh.—Very long Cucumbers are, as a rule, shy bearers; but this, I think, is an exception, as both here and wherever I have seen it growing, it has been especially prolific. I saw, a few days ago, at Messrs. Wood & Ingram's, a small span-roofed house—about 30 by 22 feet—planted with it, from which Cucumbers that had been left for seed measuring collectively 100 yards had recently been cut, the longest being 37 inches long. The most noticeable fact, however, in connection therewith, was the health and vigour of the plants.—E. Hobday, *Ramsey Abbey*.

THE INDOOR GARDEN.

RHAPIS FLABELLIFORMIS.

This is probably a native of the warmer parts of China, judging from the fact that it generally thrives best in a hothouse. Nevertheless, its hardy constitution makes it suitable for rooms; and the pleasing appearance of the plant, the foliage of which unites beauty with gracefulness, renders it very valuable for this purpose. The R. flabelliformis is said by some to be polygamous, by others to be diœcious; and possibly both statements may be true. However this may be, it is certain that the male plants are much commoner than the female ones, it being a very exceptional thing to meet with the latter, and but few horticulturists have ever seen them. It is on this account (says the "Revue Horticole") that we have given a representation of a fruit-bearing branch, in the possession of Mr. Francis Lebatteux. Judging from this specimen it would appear that the R. flabelliformis is diœcious, but this we nevertheless do not affirm. We give the facts simply as they took place. About the end of June, 1871. M. Lebatteux had in one of his greenhouses, two plants of this kind, which were in flower; one a male, the other a female. The flowers of the former speedily withered, while those of the female plant continued to increase in size, and a fortnight later all the flowers were replaced by fruit which came to maturity in the month of April, 1872. At the commencement of the blooming season, in order to ensure fruitfulness, the female flowers were fertilised with the pollen from the male plant, to which is to be attributed the production of fruit. As to the character of the plants, the male has very narrow leaves of a deeper green than those of the female plant, which is to be preferred on account of its appearance being more graceful and less stiff, with larger leaves of a more beautiful green. It would seem from this that, not only is the R. flabelliformis diœcious but also that the female plants present some difference in appearance, which may, perhaps, render it easier to distinguish them.



Ground Rattan Palm (Rhapis flabelliformis).

THE BEST STOCK FOR EPIPHYLLUMS.

My experience differs completely from that of "F. W. B." (see p. 323), as to the value of Pereskia aculeata as a stock for Epiphyllums. This species of Pereskia vegetates throughout winter in a warm greenhouse; whereas all Cereuses and Opuntias stop growing during winter (which is their natural season of rest), except they are unnaturally forced in a stove, and the Epiphyllums blossom from autumn to early spring; it therefore stands to reason that a stock which may be watered during this season without danger of rotting it, is far more suitable for general use than those which will certainly rot unless kept forced. The fact of Epiphyllum emitting aërial roots when grafted on Pereskia proves nothing. Botanists differ completely as to whether Epiphyllum is a true parasite or simply an epiphyte. I incline to the latter opinion; but, whichever be the correct one, the fact remains that this plant emits aërial roots, not only as a graft on every kind of stock, but also when on its own roots, and that large, healthy, and strong plants generally exhibit them at every joint, and seem to draw nourishment through them from the water in the atmosphere of the house. I have myself had, and have seen with others, plenty of Epiphyllums grafted on all sorts of Cereuses and Opuntias; but never have I seen them equal, either in size or beauty, to those properly grafted on Pereskia aculeata. Umbrella-shaped heads of 2 yards in diameter covered with flowers, and these often forming only the lowest tier of four or five others which diminish in circumference as they ascend, I do not believe ever have been, or ever can be, shown grafted on Cereus speciosissimus as I have seen them grafted on Pereskia aculeata. F. T. P.

Versailles.

FINE SPECIMENS OF DISA GRANDIFLORA.

Some time in the autumn of last year we took occasion (says the "Irish Farmers' Gazette") to allude to a magnificent flowering specimen of Disa grandiflora, which was flowering at Hyde Park House, Cork. Being in the same vicinity last week we called at Hyde Park House, and were well repaid for the visit by the brilliant display of this glowing Orchid which met the eye on entering one of the divisions of the fine block of span-roof houses which shelter the choice, and, what is more, admirably managed, collection of plants which has there been brought together. The display alluded to consisted of four pots of the Disa standing on a low shelf. The largest of these, and that which specially challenged admiration, and to which we would direct special attention, we will call No. 1. It was growing in a 12-inch pot, and had nineteen flower-stems, on which, in the aggregate, there were fifty-four flowers—a number, if we remember rightly, considerably in excess of that recorded as being on the same plant last year. No. 2, growing in a much smaller pot, was a most attractive and beautifully even specimen, with thirteen flower-stems, carrying altogether twenty-eight flowers. No. 3 had six flower-stems and twenty-one flowers. No. 4, four flower-stems and twenty-one flowers. Combined, the four plants bore over 120 blooms. With regard to the treatment, which was attended with results so satisfactory, it may be briefly summed up thus:—After flowering, the plants are allowed a short but not dry rest; they are then re-potted as soon as the young growth have made some progress; in the operation the roots are interfered with as little as may be, the outside of the ball being the only portion disturbed; drainage is particularly cared for, and nearly fills one-third of the pot; the soil is composed of fibrous loam and peat, with a portion of charcoal and sand. The plants, during the season of growth, are abundantly supplied with water, but never fed with it from below. They are kept at the east end of an airy house, and always have plenty of air day and night, except during severe frost, throughout the whole period of growth.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Mesembryanthemum lupinum.—This singular dwarf succulent is now in bloom here. Its flowers are straw-yellow in colour and about the size of a penny; they open in the sunlight and close at night. The plant has a very dense habit of growth, and the flowers have very short stems; they, therefore, sit rather stiffly on the plant. It is admirably adapted for culture in shallow pans, and a good mass of it, when in flower, is very pretty.—D. A.

The Garland Flower (Hedychium Gardnerianum).—This, when planted out in a cool conservatory with plenty of root room, assumes a very different appearance from what it does in pots. When planted out, even without its beautifully-scented flowers, it is extremely handsome, and well worth a place beside such plants as New Zealand Flax, Oranges, Camellias, and similar plants. Anyone who once tries the planting-out system will never like the look of the same kind of plants confined in pots again.—J. Groom, *Henham.*

Adiantum Farleyense.—One of the hothouses at Wimbledon House is just now filled with fine thriving plants of this beautiful Fern, intermixed with some of the smaller and more graceful forms of Palm, while suspended from the roof are several choice forms of Nepenthes. The effect thus produced is especially bright and cheerful at this season of the year.—H.

Phlox Drummondii splendens grandiflora.—This fine new variety has been exhibited on several occasions at South Kensington, where it has been much admired. Having but a few seeds of it, I sowed them in a 24-sized pot, in which the plants have been growing ever since. They were in bloom in the first week in July, and have never been out of flower since; even now they are as finely in blossom as at any time during the season. Of course they are somewhat leggy, but the flowers are so rich in colour and effective, that they would be most welcome in a cut state in any shape. No zonal Pelargonium, just now, could exceed this Phlox in richness of colour.—A. D.

THE PEACH.

(Continued from page 336.)

The Fruiting Year.

Young trees generally bear a few fruit the second year after planting, and we have designated it the "fruiting year" for convenience, as our instructions will refer chiefly to the care of the fruit, and will suffice for future years as well. Protecttive appliances and the manner of their use may be referred to in the first place. If the trees are healthy, and the wood has been well matured the year previous, the Peach will stand severer frosts when in flower than some people imagine. The flowers are in no danger while they are unexpanded, though they may be just on the point of opening, and when they are fully blown it is seldom they are injured by two or three degrees of frost on a wall. We have some trees on the open wall that rarely fail to produce a plentiful crop, though they have not even the benefit of a wooden coping. East winds, sleet, and cold, raw, cloudy weather, such as often accompany east winds, are always the most destructive, not only to the Peach but to all hardy fruits; frosty nights preceded by clear sunny days are the least to be feared. What is therefore found to be a protection in one place, may not answer the end in another, As a rule, copings, whether of glass or wood—in width proportionate to the height of the wall—will generally ward off the severest still frosts we experience when the Peach is in flower in this country, but they are of little avail against cutting winds and driving sleet, which are paralysing in their effects upon vegetation. On the other hand, cloth or thick net shadings, though effective guards against the last-named dangers, are themselves injurious by their shade, unless used only when absolutely required; but as that often necessitates attention at inconvenient hours, it is not done. What is therefore wanted, is a protector that will keep out both wind and frost, and yet admit light. For this purpose we have found nothing so effectual as a coping of any sort, from which is permanently suspended a herring or pilchard net during February or March. Few suspect the protection such a net affords when used in this way. Neither snow nor sleet can reach the trees, and the most piercing wind is broken and rendered comparatively harmless. We notice here that the old 1-inch-mesh pilchard netting, spread over our bushes in winter to keep the birds from the buds, catches nearly all the snow that falls, until it gets so heavy as to weigh the net down upon the bushes and break the branches; and that when the net slopes a little even the sleet does not penetrate, but forms a caking of ice on the outside. Nets resist frost and wind in a similar manner, and when they are hung over a wall from a projecting coping, they afford more protection than where stretched horizontally, owing to the wind striking the meshes obliquely, and radiation is obstructed by the same means. We can recommend nothing better, cheaper, or more convenient therefore, than nets used in the above way. The nets may be put on double for the first month, but the single net will suffice later in the season. A few wooden pins, about 15 inches long, should be fixed in a wall, here and there, to prevent the net from rubbing on the trees in windy weather.

Dis-budding and Thinning the Fruit.

When the shoots push in spring dis-budding must be performed in the gradual manner before described, with an eye to the successional shoots; and this time also with a due regard to the position of the fruit. The most summary and best process, when the fruit sets thickly, is to rub all the smallest off at once, leaving the best situated an inch or two apart; then dis-bud in the usual way, but only pinch those shoots above the second or third leaf that grow beside the fruit. At the third and last dis-budding the fruit should again be thinned to 4 or 5 inches apart, and all shoots removed but such as have to be laid on, and those where the fruit is left, which may be pinched again if needful. Except as regards tying in the shoots as they grow, little further attention will be required till the final thinning takes place, which should be deferred till the stoning process is completed, a month or six weeks later, when the fruit should be thinned out to from 9 inches to 1 foot asunder every way, if fruit of a respectable size is desired, or it is wished to avoid over-cropping, which has the same debilitating effect upon the Peach as upon the Vine and other fruits. The treatment during the rest of the season, as regards training, &c., is the same as in the previous year; a little pains should be taken, when tying in the shoots, to avoid shading the fruit, the good quality and colour of which will depend upon its free exposure to the sun and air. At the winter pruning the spurs formed where the fruit grew must be cut clean off with the knife, the shoots shortened and regulated in the usual way, and, in nailing, the lower branches may be let down to the horizontal line on each side; while, in the case of riders, they may, if tolerably vigorous, be depressed annually more and more below that line, till the head almost forms a complete circle, to be cut away, of course, to make room for the permanent trees as their branches extend. On spur-trained trees the fruit is chiefly borne on the spurs, as was before stated, and treatment in their case consists simply in the persistent pinching of the spurs during the summer, and in shortening all considerably in winter.

Mulching and Root-pruning.

If the border has been well prepared at the first, and the soil is tolerably good, the roots will require but little attention. The surface of the border will soon settle into a hard crust that need not be disturbed until it becomes necessary to apply manure that has to be forked in, and such stimulants are seldom required for the first few years. It is a first-rate plan to mulch the border, as far as the roots extend, every summer, with rotten litter or old hotbed manure, which, if decayed enough, may be applied without producing an untidy appearance. As the object of the mulching is to keep the soil about the roots uniformly moist, more than anything else, and not to promote too much surface rooting, the material need not be put on deeper than 2 inches. To keep it also in a loose and effective condition, and also to prevent weeds growing, it should be occasionally stirred with the push-hoe during the summer. The mulching need not be removed in winter, but as an accumulation of mould on the surface of the border is not desirable, the remains of the old mulchings should be cleared off before the new is put on the following year. It is rarely necessary to water the border, as our rainfall is generally sufficient to keep up the proper degree of moisture at the roots, particularly if mulching is attended to, but should water become necessary, it must be administered copiously. The disposition of the trees while young, to grow too vigorously, will be much restrained by the judicious stopping and constant pinching of the gross shoots as before directed; but these measures are not always sufficient to keep vigorous-growing varieties within bounds, especially if planted in strong soils, and recourse must then be had to root-pruning, which should be performed in October or November for the same reasons that render planting desirable at that season. Operations for this purpose begin by first opening a trench to the depth of the border round the tree, and as far distant from the stem as the roots have extended in any quantity, cutting all the roots clear off that are found beyond that point. Vigorous young trees, three or four years old, we have ruthlessly cut off at 3 feet from the hole, and we never found it necessary to open the trench farther from that point than 12 feet. Having cleared the trench out, approach the stem regularly on all sides by removing the soil carefully with a steel fork, disentangling the roots as the work proceeds, and folding them back to be out of danger. Work from below rather than from the top, keeping the bottom smooth, and removing the loosened soil with a spade as it accumulates. All roots found penetrating the sub-soil must be cut, and bare ones may be lipped on their upper sides, about every 9 inches, to induce roots of a more fibrous description. When the roots have been lifted in this manner to within from 1 to 2 feet from the hole, all round, it will be found easy, by working under the ball a little way, to force the spade through to the wall, in any direction, so as to cut any roots that may chance to have gone down into the sub-soil, without reducing the ball further. This accomplished, the roots must again be restored to the border in the order in which they were taken up, without burying them quite so deep as before, and taking care to lay them down and cover them in, as was directed for planting.

Manuring.

While the border is new and the roots are extending themselves, manure should not be required for a number of years, more especially if mulching is practised regularly; but old trees that have filled the border with roots, and ceased making gross shoots, are greatly benefited by its application; and nothing is better adapted for the Peach, in this respect, than good fresh loam or half-rotted cowdung forked well into the ground in autumn. The manure should be well incorporated with the surface soil of the border, and as deeply as possible, even though the roots are considerably disturbed in so doing. Bone dust or bones may also be applied in the same way. It is much better to give one good dressing of this kind every three or four years than to disturb the border annually, which prevents the roots laying hold and getting the full benefit of the application. If the border is old and exhausted, and it is not desirable to re-plant, restorative measures of a more energetic kind must be taken. In such a case it will be necessary to partially re-lift the roots, proceeding in the same way as in root-pruning, but removing all, or nearly all, the old soil, and replacing it with fresh loam of a rich character. By such means old trees, not positively diseased, may be again restored to a wonderful degree of vigour and fruitfulness. Little has to be said of other culture, except with regard to the syringing of the trees during the summer. Some make a practice of syringing daily, morning and evening, which is quite unnecessary, if not positively injurious. The health and cleanliness of the leaves depend more upon the maintenance of a proper degree of moisture at the roots, and other matters pertaining to root-culture already referred to, than upon the use of the engine or syringe. No good comes of drenching the trees during the cold mornings and evenings of April or May, or the dry days of June or July. Syringing should only be practised with a view to keeping the foliage clean, and for this purpose occasional good syringings, always performed in the evening, and, as far as possible, in mild or sultry weather, are sufficient.

Gathering and Keeping the Fruit.

When the fruit is approaching maturity, it is advisable to loop a net along the bottom of the wall in such a way as to catch any fruit that may fall; but the best plan is to gather it by hand before it gets so ripe as to drop of its own accord, for falling even into a net will bruise a Peach sufficiently to spoil its appearance and hasten its decay. "Peach gatherers," so-called—a kind of instrument lined with some soft substance—have been recommended and used for gathering the fruit, but they are unworthy of notice; there is nothing to equal the hand for the purpose. The eye should first be able to detect the ripest fruit by its appearance. The side next the sun will generally be highest coloured, but the fruit should not be pulled or touched unless the shady side, or the side next to the wall, is of a yellow or yellowish-green colour, according to the variety. When this is the case, place the palm of the hand over the fruit, and bring the fingers and thumb in a circle under its base near the foot-stalk, and press the fruit gently towards the hollow of the hand. If it is ripe, or nearly so, it will come off without much pressure, and unless it does so it should be left. We never like to leave a Peach, however, after trying it in this way, as it often falls shortly afterwards; besides, it does no harm to the fruit if it is pulled before it is quite ripe. On the contrary, the Noblesse and other tender-skinned varieties sometimes crack, and even decay at the top, before they are ripe beneath. We prefer to pull all sorts before they are perfectly ripe, and let them finish in the fruit room, which they will do without deteriorating in flavour, and also keep longer. The trees should be gone over once or even twice a day when the fruit is ripening fast, and as it is gathered it should be laid on a flat tray covered with cotton wadding, and afterwards transferred to the fruit-room shelf, which should also be covered with a sheet of wadding, woolly side downwards. Always lift the fruit the same way as in pulling it from the tree, but, from the time it is gathered till its appearance on the dessert table, handle it as little as possible. These hints are not unnecessary, for very frequently the marks of the fingers are only too offensively visible when Peaches reach the table, where an acknowledgment of their fine appearance and condition is looked for as the ultimate reward of the pains and labour expended in their production. Those who arrange the fruit upon dishes should calculate what quantity they require, and build up the fruits accordingly, without having to undo the work again because they happen to have too many or too few at the end. Peaches vary in their keeping qualities. The tougher-skinned sorts, such as the Royal George, keep best, while the delicately-coloured and tender-skinned Noblesse shows a blemish in a few hours, and decays in a proportionately shorter time; but much depends on the handling on all occasions. Carefully-gathered Peaches we have kept in quantity in a cool fruit room for a fortnight, in fair condition, and Nectarines for three weeks; but this must be considered the limit in summer weather. Stored in shallow tin boxes, taking care that the fruit were not in contact with each other, but simply laid on the bottom of the box, with a sheet of cotton wool under them, and placed on ice in the ice house, but not buried, we have kept Peaches for more than a month without blemish, and Nectarines for six weeks; but when so preserved for that length of time they require to be used almost before the chill is off them; they perish so fast after being exposed to the air. The flavour of the fruit also deteriorates in ice, but not to a very noticeable extent.

Diseases and Insects.

Mildew.—This is one of the worst diseases that attack the Peach, but, fortunately, all varieties are not equally subject to it. The Royal George Peach and Elruge Nectarine, and allied kinds, such as the Bellegarde Peach and Violette Hâtive Nectarine, generally suffer first; while such kinds as the Noblesse and Grosse Mignonne Peaches often escape, even when growing side by side with badly mildewed trees. The Royal George is the worst of those named; but all of them should be watched when they form part of a collection, for the disease spreads from one tree to another unless it is checked at the outset. Dryness at the root is considered to be a fertile cause of mildew. Probably anything which lowers the vitality of the tree during the growing season will help to produce it; but we have generally noticed that it appears on the young leaves and points of the growing shoots after a spell of fine growing weather succeeded by cold, and have thought that, under such circumstances, the disease was worse in unheated Peach-cases than on the open wall, probably owing to a more stagnant atmosphere. It makes rapid progress, and destroys the leaves and young wood wherever it appears. Good management generally will help to ward it off, but sulphur is the only real preventive and cure, and may be applied either by the duster or syringe before there are any signs of mildew. When it does appear the sulphur must be applied at once, and the application should, if necessary, be repeated two or three times in the course of a few weeks. The signs of abatement are a fresh growth, free from the mould and the curl which it produces in the leaves.

Gumming.—This is a no less destructive disease than the foregoing—in fact, it is more to be dreaded; but, as it is not so common, and is generally due to preventable causes, it is less thought about. The disease need not be described. Gumming, as it is often seen in the Cherry and Plum, and some other trees, the reader is familiar with. These trees, however, it seldom injures seriously; but when it attacks the Peach in an aggravated form there is no cure for it, and the only plan is to root the trees out and re-plant. Trees growing in strong, rich soils are most liable to it, and it often originates at a point where gross or unripe shoots have been cut back or removed, or where branches have been cut out and the wood has decayed; but the worst affected trees we ever saw were trained to a galvanised wire trellis, to which the shoots had been tied too tightly in many places, the consequence being that scarcely a branch was free from gum, which exuded from the shoots at their points of contact with the wires. It was the ruin of the trees in this case, and we have heard of similar instances in different parts of the country. To prevent the disease, the border must not be composed of too rich material at the beginning; gross shoots must be restrained by pinching, or removed while they are still young; every effort should be directed to the ripening of the wood; tight tying must be avoided, and in cutting out strong branches take care to rub the wound well over with white lead, to keep out the moisture and prevent decay. We once saved a large limb of a Peach tree that had all but gummed through at a point where a thick branch had been cut back, the wood having decayed down the centre of the branch, and partly on the under side, to the depth of 6 inches. We sliced off the decayed portion on the under side, and gouged the remainder of the dead wood out with a chisel, making a regular hole down the branch, and leaving scarcely sufficient wood and bark to hold the branch up, and afterwards filled the cavity up with white lead. The gumming ceased the same season, the wound has long been healed, and the white lead is completely covered over with new bark. When trained against walls, bare limbs of the Peach are sometimes injured by the sun in still, hot weather. To prevent this, the young shoots should be tied to the naked branches in order to shade them. Burning seldom occurs on well-furnished trees.

Aphides and Red Spider.—Aphides are amongst the most troublesome enemies of the Peach out of doors, as the usual remedies cannot be applied effectually. The best cure is to syringe vigorously when they first appear, to prevent their spreading. The usual insecticides may also be applied advantageously for their destruction. The green-fly is the most common enemy of the aphides class ; but occasionally, during warm weather in September, the black-fly appears in great numbers, and, settling on the Peach trees among others in a perfect cloud, they bring the leaves off in a short time. A few applications with the engine will keep them in check, and they usually pass away with a few days of cold weather. Red Spider is another pest, but it does not trouble ordinarily well-managed trees to a serious extent. It is most destructive under glass. Mulching the border, and otherwise taking care to prevent the trees suffering from drought at the root, will do much to prevent its ravages, and, when it does appear, syringes must be used frequently. Thrips yield to the same treatment. Earwigs, weevils, and caterpillars must be trapped or picked off by the hand; and ants should be fed on raw liver, which they attack greedily, congregating upon the pieces in large numbers, when they may be destroyed with boiling water. A few days' persistent attention in this way will get rid of them.

Selection of Peaches and Nectarines for Out-door Culture.

These are named as nearly as possible in the order in which they ripen; and it is hardly necessary to state that the early and second early varieties only should be selected for late situations; they are mostly all well-known kinds:—Early Louise, Early Alfred, Royal George (one of the best), Noblesse (fine), Grosse Mignonne, Lord Palmerston (handsome), Stirling Castle, Barrington, Late Admirable, Walburton Admirable (both good), Salwey (very late). Nectarines:—Elruge, Violette Hâtive, Pitmaston Orange, Newington, Balgowan, Rivers's Victoria.

J. S.

(To be continued.)

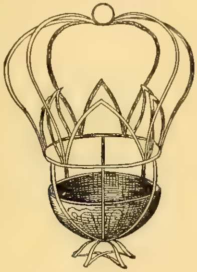
THE VINE PHYLLOXERA.

We learn from recent Californian newspapers that the Phylloxera has established itself in the Vineyards of that country, and that serious alarm as to its progress is entertained by Vine growers. It has formed the subject of anxious deliberation at San Francisco, Sonoma, and other centres of production. At a meeting of the Napa, Sonoma, and Solano Grape Grower's Association, held on 4th September last, a discussion took place which elicited a very practical review of the means hitherto used both for its prevention and cure. It appears that upwards of seventy different substances have been already tried in France by the Herault Commission without success. Some of these are used in mixtures, the composition of which is unknown. To these remedies must be added various modes of treatment, such as boring the trunk of the Vine and impregnating the sap, the planting of certain herbs near the stalk, as Horehound, garden Cress, Chamomile, Pyrethrum, &c.; also the introduction of natural enemies of the Phylloxera, such as lady-birds, ants, and spiders. None of these have, however, proved completely successful remedies. Fançon's remedy of flooding the Vineyard proved effectual on sandy ground with a clay sub-soil; but in California there are few places where this would be practicable. So little has been accomplished by way of remedy, and such is the frightful loss from the rapid spread of this insect that the French Government offers a prize of £12,000 for a really successful cure. The mild winter of 1874 was followed by a notable increase of the insect, cold and wet being detrimental to their extension. By the loss of sap, perhaps also by the effect of a poisonous excretion introduced into the wound made by the trunk of Phylloxera, the Vine is injured. If but few are present, or it is endowed with strong powers of resistance, like the Concord, Delaware, and Scuppernong Vines, the presence of the enemy will hardly be noticed. But if they increase as usual, by the second year the Vine will show that it is diseased. The leaves turn yellow, the stock becomes spindly, the shoots wither, the berries shrivel, and, finally, the whole plant dies. Oftentimes the insects will be found to have abandoned the exhausted roots of the dead Vine for the more juicy ones of adjoining Vines; not discovering them on the roots of the dead Vine is no criterion that they are not the cause of death. They may be on the roots of the partially injured Vine. The insects which are winged may be carried vast distances by the wind. The wingless ones may be carried in cuttings, &c., and in the clothes of persons passing from one Vineyard to another. The American consul at Basle, Switzerland, reported last May to the State Department the discovery of an effectual remedy. His letter says:—"Upon the authority of Professor Dumas, of the French Academy, it must be conceded that an effective remedy has been discovered against the Grape-root louse (Phylloxera). It is the salt, potassic sulpho-carbonate (K. S. C., S^2.), which in a dry form is strewn upon the soil, whence a rainfall carries it down in solution, bringing it thus in contact with diseased Grape roots. Experiments by Messrs. Milne-Edwards, Duchâtre, Blanchard, Pasteur, Thénard, and Boulay, have been crowned with complete success." Notwithstanding the positive tone of this letter, it is still very far from certain whether this remedy may not prove also abortive. According to Dr. Siebekind, employed for some time at the Sulphur Banks, in Lake County, the potassic sulpho-carbonate can be made and supplied from that place at a low price. It is proposed to thoroughly test the matter in Sonoma. The ravages of the insect there are alarming. It has appeared also in St. Helena, in Solano County, at Suscol, and elsewhere. It may be present where now least suspected; and its extermination is a subject of vital importance, and its spread a cause of alarm to everyone who cannot completely flood his Vineyard.

Sunflowers and Malaria.—This subject received some attention about three years ago, when a conversation between General Sherman and the correspondent of a London paper, respecting the pestilential marshes around Rome, was published. The General said —"We utilise such places, and make them healthy ; we just sow them with Sunflower seed—common Sunflower—and that does it." My own experience points to the same conclusion. Taking up the cultivation of the Sunflower a few years ago, my attention was forcibly drawn to the subject of its extensive cultivation having a markedly beneficial effect on the surrounding atmosphere, by the fact that one season the village near which I resided was visited by a severe epidemic of scarlet fever and typhus ; many children died—one in a cottage, where the whole family was prostrate at one time, not a hundred yards from my own house. All my family escaped without a touch of sickness. I had at that time about sixty very large Sunflower plants in my garden surrounding the house, many of them being 12 feet high. My personal experience of the efficiency of the cultivation of the Sunflower as a preventive of miasmatic fever has been fully borne out by other and worthier authorities, of whom General Sherman is one. A land-owner on the banks of the Scheldt sowed the Sunflower extensively on his property near the river, with such effect that there has not been a single case of miasmatic fever among his tenants for years, although the disease continues to prevail in the neighbourhood. The medical men in France, Italy, and Germany, believe the cultivation of the Sunflower to be effectual in removing the sources of disease. It may not be generally known that the Sunflower absorbs, during its growth, a vast quantity of impure gases; it feeds largely by its leaves, absorbs nitrogen more rapidly than any other plant, and will evaporate as much as a quart of water daily. I am convinced that the cultivation of this much neglected plant on a larger scale would not only be beneficial, but remunerative. The fibre can be used for making paper; the ripe seed is most useful as food for poultry, especially during the moulting season; from it a fine oil—second only to olive—is extracted; the leaves are much relished by rabbits, and the thick stems may be used as fuel.—"Public Opinion."

BALLOON HANGING BASKETS AND POT-HOLDERS.

Among the various forms of these now in use we do not remember to have seen that represented by the accompanying engraving. It consists of a wooden bowl, supported by narrow steel straps, strong, flexible, and elastic, and so contrived as to form a crown or balloon-shaped trellis above the bowl, over which the plant is to be trained. Steel straps of this kind may be converted into pot-holders, by which a pot may be suspended at any time when it may be desirable to do so. Indeed, such trellises may be [made useful in various ways, and they are capable of being made of many different shapes. Q.



Limekiln Heating.—In answer to the enquiries of "A. D." (see p. 318) allow me to state that limestone made into lime by Cowan's system of heating, is equal in quality to any that can be procured for building purposes, a very small percentage only being wanting in this respect. The price of lime varies in the different counties. Of course where limestone or chalk is plentiful the lime does not realise a high price, but where, on the contrary, chalk and limestone cannot be easily procured it commands higher prices. I have known it bring from 4d. to 2s. per bushel. Good chalk lime made by the same process, although, of course, not equal in quality to that made from limestone, is fit for all ordinary building purposes, and makes better manure for the land; but being of so caustic a nature inferior or surface chalk will produce lime of moderate quality only—Edward Bennett, *Rabley Nursery, Herts.*

Pigs killed by Acorns.—The year 1874 was remarkable for a very large crop of acorns, in this part of England (Lancashire) the Oaks being green with their heavy loads of fruit. This has led many persons to give them liberally to their pigs, and fatal results have followed in several cases. A simple hint may be useful to many. Pigs which are allowed to roam at large in the fields can partake of acorns without stint, and without any evil ulterior consequences resulting, and observing this immunity from ill-effects, people are often induced to give them to pigs which are kept confined. But the pigs which are at large have stronger digestions, and they pick up herbs, soils, &c., which counteract the astringent properties of the acorns. The flesh of the confined animals killed by eating acorns is, according to a correspondent of the "Agricultural Gazette," of a dirty yellow, and unfit for food.

"BEDDING."

"The Commissioners of Works intend to distribute, this autumn, among the working classes and poor inhabitants of London the surplus bedding-out plants in the Metropolitan parks."

Your bedding-out plants you may offer the poor,
Now Autumn her leafage is shedding;
But Winter will teach you they want something more,
And then you can offer them—bedding. "Punch."

CORRESPONDENCE.

COLOUR NO TEST OF MATURITY.

TO THE EDITOR OF "THE GARDEN."

Sir,—I agree with Mr. Fish that colour is not a true test of maturity in all fruits, particularly in black varieties either of stone fruit or Grapes; but, on the other hand, colour in light-coloured fruit is always a sure sign of maturity, more especially in Grapes. For example, when Muscats assume the well-known golden-yellow, they have the full musk flavour which characterises this kind. From close observation of the connection that exists between colour and flavour, I believe, with Mr. Simpson, that maturity without colour is maturity without flavour. Even the finest coloured fruit loses colour in keeping; but it gains in sweetness. The flavour of the Pine-apple, for instance, just as the fruit loses its last shade of green, is at the highest point; and, as soon as that point is turned, it becomes sweeter, but loses its true flavour. I must differ in opinion from Mr. Sheppard as regards judging by appearance, either in the case of fruit or some sorts of vegetables. In a large competition in August and September, no practical man could be certain, judging by sight alone, which is the best dessert Apple, Pear, or Plum, without cutting some of the fruit. Melons are more uncertain still, and as to Black Hamburgh and other black Grapes, I have seen them of good shape and size, both in bunch and berry, black as jet, with a beautiful bloom; but, at the same time, as sour as Crabs. This is often the case where the house is full of foliage, and where they are grown in a cool atmosphere. Those who prefer uncoloured to high-coloured fruit must mistake sweetness for flavour. James Smith.

Waterdale.

SPANISH MELON GROUNDS.

The Melon grounds of Alicante, in the province of Murcia (says a correspondent of the "Times"), are somewhat disappointing. Never would you believe that from those dusty, little-watered plots would come all the wealth of succulent Melons that lie in heaps at every street corner. The Melon grounds look like an English ploughed or fallow field, with a thin carpeting of Vegetable Marrow plants. Yet, here and there, you see the great, juicy, round fruit, half covered with dust, lying on the cracking earth. All those that were ripe were gathered over night. The Melons are planted in May; in less than a month, they begin to bear fruit, and keep on bearing till the commencement of October; they require less water than any of the other plants. The Melon takes, from the time that the white or yellow flower falls off, to the time of plucking, about forty days to arrive at maturity. These Melons are of two kinds—first, the Melon proper, with its yellow, luscious, honeyed fruit, so well known in England; secondly, the Sandia, or Water Melon, grown on the coarsest and most sterile soil, and which is the cheapest fruit in Spain, and the salvation of the thirsty masses. The Sandia weighs from 8 to 25 lbs., and is sold at a farthing or less per pound. Its huge bulk, its hard coarse-looking dark green rind, the rude way in which it is kicked about, would never lead you to believe that it is so justly prized as it is. Every traveller in Spain has been offered a slice of its flesh, that looks like a crimson rock, yet melts in your mouth before you can taste its flavour. On every long, hot, dusty journey, the second-class traveller buys a huge Sandia and offers a slice to his fellow passengers; every *table d'hôte* groans beneath these crimson crags; a lump of this cools the fevered blood; 2 lbs. may be eaten without fear of harm. The growth of the various kinds of Melons is so much in advance of the immediate consumption, although poor and rich alike almost live upon them during two months of the year, that the gardener cuts thousands just before they arrive at maturity and hangs them up for the winter. Half or three-quarters of an acre, as nearly as I could calculate, would produce no less in a favourable season than 400 arrobas of Melons! Each arroba weighs exactly 25 lbs. avoirdupois. Now, at a rough calculation, these 400 arrobas, weighing 10,000 lbs., may be estimated at the value of three farthings per pound, giving 30,000 farthings, which, roughly speaking, is equivalent to about £32. This calculation will give some, although but a slight, idea of the importance of the Melon trade. And, in forming his idea of the wealth of Spanish irrigated ground, let my reader remember that four crops annually are raised upon the same plot; and that growing amid Melon or Apricot grounds stand the Peach, the Fig, the Pomegranate, or the Almond tree.

Span-roofed v. Lean-to Houses for Grapes.—In reply to Mr. Macfarlane's enquiry (p. 338) respecting this matter permit me to state that, where ripe Grapes are wanted before the end of May, a lean-to house ,with a due south aspect is the most suitable structure in which they can be grown. For the cultivation of summer, autumn, and winter Grapes neither kind of building has any advantage over the other.—J. Muir.

MASSACHUSETTS HORTICULTURAL SOCIETY.

The forty-seventh annual exhibition of this society was held in Boston on the 21st, 22nd, 23rd, and 24th of September. The season, though late, has been unusually favourable for Pears, and the show of this fruit was not only large, but remarkably fine. Three large tables, about 80 feet in length, were filled with fruit, in all some 2,000 dishes, each containing twelve specimens of a sort. The Pears occupied nearly two of these tables, and some fifty or more varieties were exhibited, chiefly of the following sorts:—Adams, Bartlett (Williams's Bon Chrétien), Andrews, Beurré Langlier, Sheldon, Howell, Pratt, Winter Nelis, Louise Bonne of Jersey, Beurré Diel, Beurré Clairgeau, Beurré Bosc, Beurré Hardy, Beurré Superfin, Urbaniste, Swan's Orange, Belle Lucrative, Paradis d'Automne, Doyenné du Comice, Seckel, Dana's Hovey, Lawrence, Moore's Pound, Marie Louise, Duchesse d'Angoulême, Merriam, St. Michael, Archangel, Dix, Flemish Beauty, Doyenné Boussock, and several others, with the two newer Pears, Souvenir du Congrès, and Marie Louise d'Uccle. There were eight competitors for the premier award for twenty varieties, containing twelve of each kind, and Messrs. Hovey & Co. carried off the prize with splendid fruit, large, clean, smooth, and high-coloured. The competitors for the collections of fifteen, ten, and five were also numerous, and some of the kinds very fine, particularly Beurré Hardy and Sheldon. The show of Apples was limited, but there were some excellent dishes of Gravenstein. Native Grapes were not so numerous nor so good as usual, owing to the late season and recent heavy rains and cool weather. Peaches were also not abundant this year. Of exotic Grapes, only fair exhibitions were contributed. The display of plants was not so extensive as usual, but some of the specimens shown were all that could be desired in the way of culture. Mr. H. Hunnewell exhibited some large and beautiful examples of the following Dracænas, viz., Baptiste, Mooreana, porphyrophylla, Youngi, amabilis, magnifica, and Regina, each from 3 to 5 feet high, fresh and clean. D. Baptiste worthily carried off the society's silver medal, as the best specimen new plant. W. Butler, gardener to Mr. H. P. Duraid, had twelve plants, the names of which are as follows, viz., Dracæna cannæfolia, ferrea and stricta, Strelitzia angusta, Pandanus graminifolius, Croton Cascarilla, Maranta princeps, Eurya latifolia variegata, Cycas revoluta, a good Alocasia zebrina, and Croton Veitchi (4 feet), which were awarded the first prize. Messrs. Hovey and Co. had Chamærops Fortunei (8 feet), Hyophorbe Verschaffelti (9 feet), Pritchardia Gaudichaudi (6 feet), a superb specimen, Croton interruptum, a grand plant of Phormium tenax variegatum, Maranta zebrina (5 feet through), Yucca quadricolor (4 feet), a variegated American Aloe (4 feet), Dracæna Draco (9 feet), Croton variegatum, and Cycas revoluta; to these was awarded a second prize. Messrs. Hovey & Co. had also Ficus Parcelli, Paullinia thalictrifolia, Anthurium crystallinum, Dracæna Hendersoni, D. amabilis, and other rare plants. Their two Palms—one a golden variegated form of Pritchardia Gaudichaudi, the other Geonoma pumila—carried off the prize for the best pair of plants shown. They also had twenty-five succulents, twenty-five Cacti, six fine Caladiums (including Albert Edward), and several Coniferæ, among which was an example of Sciadopitys verticillata 5 feet high. Some excellent new Dracænas, of moderate size, and other new plants, were shown by Mr. Jas. Cornley; a fine collection of Ferns by the Hon. J. W. Merrill. A good collection of plants came from Mr. F. L. Ames, and another from Mr. W. T. Andrews. Owing to the wet and cool weather of the previous week the show of cut flowers was not as good as usual; but there was, nevertheless, a fair display. Potatoes were largely exhibited, as were also Tomatoes, Egg plants, Squashes, and Lima Beans.

Gardener's Discussion Meetings.—The opening of a Gardeners' Discussion Association, at Wimbledon, took place on Monday evening last, under the presidency of Mr. Ollerhead. After partaking of refreshments, liberally supplied by Sir Henry Peek, who takes much interest in the matter, various regulations, previously drawn up, were agreed to, and a paper on Vine culture was read by the chairman, the discussion of which was adjourned to the next meeting, which takes place on the 25th inst.

Cocoa-nut Milk.—An interesting article in the September number of the "Overland Monthly," gives some fresh facts in relation to certain products of the Navagator Isles in the South Pacific Ocean, which have attained world-wide celebrity. When intended for food the Cocoa-nuts are pulled at a much earlier stage of their growth than when intended for oil. According to its age a nut varies in flavour and in the amount of milk it contains. Some persons prefer the very young nuts; others those more mature. If you tell a native beforehand what kind of nuts you like, he will straightway climb the nearest tree and bring down what you want. As, however, all Cocoanuts are much the same in appearance, no mere inspection would suffice to convey to the native the desired information. This he obtains by tapping the nuts lightly with his fingers, and then drawing an inference from the sounds he elicits. There is a great deal of skill in this proceeding, and very few whites have ever succeeded in mastering it. The kernel of a young nut is not more than a quarter of an inch in thickness, and has very much the appearance and consistency of cream. It contains generally about half a pint of sub-acid juice, containing free carbonic acid, and being consequently slightly effervescent. This is the so-called Cocoa-nut "milk," which, however, resembles much more nearly water. In the old nuts this fluid is absorbed, and in its place appears a white mass, the germ of the future plant.

Tree Cloth.—A stall has lately been added to the Maritime Exhibition by the Cork Leather Company for the purpose of showing a fabric which is very like leather, but with qualities not possessed by any animal's hide. It is well known that cork is the most brittle of barks, and yet, at the same time, the lightest of materials. The cork leather which now makes its appearance for the first time is simply sheets of cork covered on both sides with thin linen, but so prepared that when bent double it neither breaks nor cracks. If used as leather, it is certainly one-fourth the weight of hide, and looks as well, at half the cost. If in the guise of macintosh, it is as supple, and yet not sticky like ordinary waterproof. Boots and shoes are exhibited of this material, but the most efficient use to which it can be put seems to be for military accoutrements and tentcloths. The French War Office has ordered a soldier's complete outfit to be made of the cork leather, and I understand that the Duke of Cambridge has directed similar samples to be sent to the Horse Guards. With regard to tents, the material is, without doubt, impervious to water, for this is practically shown at the exhibition, while it is said on good authority to be superior to ordinary canvas in resisting heat. If it be used in the army the tedious burden of kit, belt, and cartouche-box will be very materially decreased. The inventor is a M. de Berski.—"Times'" Correspondent.

More Redwood Trees.—A new grove of colossal Redwood trees (Taxodium sempervirens) is stated to have been discovered in California, one of which surpasses all that have been discovered on the Pacific coast. Its circumference, as high as a man can reach, standing and passing a tape-line round, is stated as being only a few inches less than 150 feet, which is beyond the measurement of any tree in the Calaveras grove. The height is estimated at 160 feet, and a part of the top lying on the ground is over 100 feet in length.

Large-flowered Pimpernel.—One of the gayest beds I had in my garden in August and September was a small round one consisting of the different varieties of Anagallis grandiflora, which, on a bright sunny day, was truly beautiful.—H. Harpur Crewe, *Drayton-Beauchamp Rectory, Tring.*

Late-flowering Feverfew (Pyrethrum serotinum).—This is one of the noblest of all tall-growing herbaceous plants, forming dense tufts 5 to 7 feet in height, terminated by lax clusters of pure white flowers, each about twice the size of those of the Dog Daisy (Chrysanthemum leucanthemum). It has recently been very ornamental, both at Chiswick and Kew.—B.

The Dwarf Cryptomeria.—In gardens where varied and picturesque effects are sought through the use of shrubs, the pigmy form of the well-known Cryptomeria japonica may be most advantageously employed. There is a spreading specimen, very old, striking in outline, and about 3 feet high, in the College Botanic Gardens, at Dublin.—V.

Late Plums.—Two of the best Plums are Belle de Septembre and Coe's Late Red; the former is a large roundish oval fruit, violet-red, and a first-rate cooking or preserving Plum, beginning to ripen now; the latter is not so large a fruit and rounder, of a bright purple, and will hang a long time after it becomes ripe when kept from damp and insects. Both should be in every collection.—A. Henderson, *Thoresby.*

Hypericum monogynum and others.—Of the rather numerous kinds of Hypericum in our gardens, this is one of the neatest in habit and most attractive in flower. By the way, the Hypericums are among the shrubs that deserve a little more popularity than they have yet obtained. A number of species of no great beauty and somewhat alike in character have tended to confine them to botanic gardens, but H. nepalense, H. elatum, H. oblongifolium, not to speak of the common St. John's-wort, deserve a place among hardy shrubs. —V.

Gymnothrix latifolia.—I have grown this for several years. The first spring I possessed it I started a plant of it in a warm greenhouse, and when turned out in May it was about a foot high. This plant, had the frost spared it a few days longer, would have bloomed. Its spikes were just bursting the spathe when frost cut them down. I have no doubt, thus treated, in favourable seasons, the "purple inflorescence" your correspondent speaks of (p. 325) might be obtained. It attains with me a height of 5 and, sometimes, 6 feet.—J. M., *Hawkchurch, near Axminster, Devon.*

Steele's Improved Black Walnut is a Maryland seedling. It is a large nut (broader than long), with a very thin shell and a remarkably white kernel, and was discovered by J. B. Steele, of Caroline Co. The original is evidently a graft, as the tree is forked, and one side bears an inferior nut, the other the nut named, which is perhaps the best Walnut out.—"Gardener's Monthly."

Mowing Machines and Tree Damage.—If a small circular bed is cut around each tree or shrub, the mowing machine will be powerless to inflict injury, however clumsy the operator may be.—S. Rogers.

No. 206.] SATURDAY, OCT. 30, 1875. [Vol. VIII.

"This is an art
Which does mend nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

LILY GROWING.

Now that Mr. Wilson and Dr. Wallace have both given your readers the benefit of their experience in Lily growing, I hope I may be allowed to add a few words on what I have observed in a very different climate and soil from those of Colchester or Weybridge. I think that soil and climate have more influence on Lilies than on most plants, and, though it is not long since I took to the cultivation of this charming genus, I have discovered some facts about it which may be useful to others. It seems to me that Lilies for cultural purposes may be divided into three classes—first, those which are best grown in pots, among which I would place all Neilgherrense, Wallichianum, philipinense, and eximium, and, in many soils and climates, speciosum and auratum; secondly, those which are best grown out of doors in loamy soil, as candidum, tigrinum, most of the Isolirion, and nearly all the Martagon group; thirdly, those which are best grown out of doors in peaty soil; this section includes all the canadense forms, with rhizomatous bulbs, and many of the Japanese Lilies. Mr. Wilson has undoubtedly proved the possibility of cultivating nearly all the Lilies to perfection in pots; but I think his success is due—first, to great care and attention to watering; secondly, to the use of large pots and a very light porous soil, which will bear constant watering without becoming sour and clogged; and lastly, to the unrivalled knowledge of their peculiar constitutions which he possesses. Many others grow fine specimens of auratum and speciosum in pots, and go on doing so for years with the same bulbs; but, as a rule, I fear that, from ignorance, carelessness, and from unavoidable causes, owing to the want of constitution in the plants, nine-tenths of the imported bulbs of the former and half the latter are dead three years after their arrival in this country. Mr. McIntosh, of Oatlands Park, has proved that, if the soil and situation are thoroughly favourable, outdoor culture will beat potting even with these species, but few are bold enough to have such a garden as his; and though, by careful selection and preparation of soil I have been able to keep them alive, I have never got either of these plants to do even fairly in my garden. I must, however, explain that it is situated on the top of the Cotswold Hills, in a cold and wet climate; that the soil is sticky, poor, and full of lime; and that in summer it very quickly becomes dry and hot. Under these circumstances, I find that Lilies suffer more from wet and cold autumns, and dry summers, than from any other causes; and that with the exception of the Martagon group, Tiger Lilies, and a few of the older sorts, I cannot bring them to perfection in unprepared soil. The sorts that do best are Chalcedonicum, Monadelphum, tigrinum, croceum, giganteum, and excelsum; and in made soil I have grown nearly all the others well, with the exception of Leichtlinianum, tenuifolium, and philadelphicum. The first species I do not understand: and both the others require a sandy soil. I find that many Lilies which grow and flower well if planted out in summer, suffer much from such an autumn as we are now having, 5 inches of rain having fallen in one week, and this just at the time when the roots are least active, and the bulb most likely to suffer from excess of moisture. Much as I dislike moving an established plant, it is better to lift it with as little disturbance as possible, keep it in a frame till spring, and then plant out again, than to expose it to such a deluge as this. I believe planting out in frames is the best plan of all, as it certainly is with many other bulbs; and this is the system I would recommend to all who want fine Lilies without much trouble. In this way, Mr. Leichtlin keeps nearly all his choice and rare sorts, shading them during the heat of summer, and putting the lights on when the stems have withered. What he fears most of all is such a dry hot spring as occurred this year, and which did his Lilies more harm than any amount of rain could have done. Just at the time when growth is most active, both above and below ground, a severe drought ensued, the painful effects of which were only too visible in July, when I had the pleasure of visiting his most interesting garden. All these drawbacks are with certainty avoided by pot culture, which, with sufficient care, will undoubtedly give good results. I will now say a few words upon some of the newer Lilies, about which our knowledge is still deficient, and I do this in the hope of inducing others to give the benefit of their experience to the readers of THE GARDEN. As to Neilgherrense Dr. Wallace makes a great mistake in saying that it comes from the Himalaya. Its real habitat is the mountains of southern India, 12° farther south, at an elevation of 6,000 to 8,000 feet. I expect this very fine plant will prove an easy one to grow, as the bulbs which I received last year have, under Mr. Wilson's generous treatment, doubled and trebled in size, and appear likely to flower strongly. They were grown in a frame or cold greenhouse all the summer, and are still green and healthy, with active roots; one, which I put out in company with a bulb of Wallichianum, has also made good healthy growth, and, though they were both late in starting, they are now, October 24, still fresh and green, the only Lilies in the garden which are so. Wallichianum seems difficult to flower. I was in great hopes of seeing it at Kew, where a plant grew strongly till it had a bud 3 inches long, and then all at once, from some unknown cause, but I believe from the soil having become scorched, it went off, and when I saw it again was withered and dead. Krameri, or more properly japonicum, is another "miffy" one, with which I have never done any good, and I want to know if anyone has grown it well in the open ground. Prof. Maximowicz told me he found it on the highest mountains of Japan, so it must be hardy enough, and, if sound bulbs can be got, that is the way I should try it; but I have never seen it in anything like vigour except at Heatherbank, and the bulbs are well known to be extremely delicate. The bulb of L. Catesbæi, about which Dr. Wallace enquires, is certainly a peculiar and unmistakable one. It is figured, though not very well, in the "Botanical Magazine," p. 259, and may be easily recognised by its small-sized, thin, pointed, white scales, some of which are, in weak bulbs, prolonged into a narrow leaf. It has been out of cultivation for a long time, I believe; the plant grown as Catesbæi in some nurseries being the one figured in "Botanical Magazine," t. 872, as L. pennsylvanicum, but really a Siberian Lily, and, as I think, differs from the true dahuricum in the form of the bulb, which is very remarkable in both these species. What are generally grown as dahuricum in nurseries, and of which Mr. Barr has many fine varieties, are, I believe, descended from hybrids raised many years ago between elegans (*alias* Thunbergianum) and croceum or bulbiferum. Mr. Barr thinks that Groom was the raiser of the plants known as fulgens, Rubens, Vulcan, maculatum, punctatum, &c., and, if any old florist who can remember so long ago, will give us any information on the subject he will do good service. I will take this opportunity of apologising to the subscribers to my "Monograph" of Lilies for the unavoidable delays which have taken place in bringing it out; but, as more than half the drawings are now done and the first part is in the press, I hope their patience will not be much longer tried.

N. J. ELWES.

BRAMBLES FOR THE WILD GARDEN.

SEVERAL kinds of Brambles are as singular-looking as they are beautiful, and many of them are suitable for planting in certain positions in the wild garden, where they may be allowed to scramble over stumps of trees, or hang down boulders of rock. They are also equally valuable for clothing steep banks under trees where little else would grow—positions in which their singularly-cut leaves are seen to great advantage. The handsomest for this purpose is a variety called Rubus laciniatus, which has large, and, as its name implies, deeply-cut, leaves, that render it very attractive. This is a strong-growing species, and one well adapted for either of the positions just alluded to. For pegging close to the ground, or training over rock-work, R. fruticosus variegatus is most valuable. This has small and beautifully variegated leaves, and it might be used with good effect as a bedding plant, now that so much use is made of plants having ornamental foliage. R. australis is a very interesting and singular-looking plant, having fragile-looking stems, that appear, at first sight, to be leafless; and they are, in fact, nearly so, as the leaves are only about the sixteenth of an inch wide, furnished with white-looking spines on each side that give them the appearance of the vertebræ of a fish. This is a pretty little plant for growing on a warm sunny bank or border, where it can be afforded shelter and ripen its growth. Rubus leucodermis is, perhaps, the most singular-looking of all the Rubuses or Brambles, on account of its peculiar-looking stems, that present the appearance of having received a heavy coat of whitewash. This, in growth, greatly resembles the common Raspberry, except that it is more branching, and considerably stronger, attaining a height of from 6 to 10 feet, according to soil and situation. It has a good effect in certain positions, as, for instance, when it is backed up by any heavy dark foliage, such as that of Ivy. In addition to those just mentioned, there are, however, others that are not only ornamental, but exceedingly valuable, on account of the abundance of useful fruit which they bear. Without mentioning the Raspberry, which is too well known to need a word here, there are others deserving some attention. Among these may be mentioned the Lawton Blackberry, which appears to be highly prized in America, but here its value is either not appreciated, or there is a prejudice against it on account of its being merely a Blackberry, plenty of which can be got from the hedge-rows. Although this is the case, people do not avail themselves of Nature's free gifts half as much as they might do, considering the many wholesome uses to which the common Blackberry may be put. For wines, jams, or tarts, it is but little, if at all, inferior to many cultivated fruits, and in seasons of scarcity may, therefore, be turned to good account. If the object in planting the different varieties of Rubus in the wild garden, is to obtain fruit as well as for ornamental purposes, a situation that is fully open and exposed should be chosen for them; otherwise the fruit, if it sets at all, would stand but little chance of ripening. J. Sheppard.

CHURCH DECORATION.

I was pleased to see Mr. Hobday's remarks on this subject (see p. 302). What we should chiefly guard against is over-doing the matter. In the rural parish of Middleton Tyas, in Yorkshire, I saw church decoration carried out in an exceedingly interesting manner, the materials used being leaves of the Spanish Chestnut, Oak, Beech, sprigs of Ivy and Birch, a few stalks of Oats, Perilla nankinensis, and one or two wild Grasses, all judiciously worked up, and made into wreaths of the most harmonious and pleasing description. The shape of each leaf was, as far as possible, preserved, while the stalks of Oak gave a drooping spray-like appearance to the composition. In the window-spaces were placed a few green leaves and moss, on which was placed some fruit. A handful of choice heads of Wheat, neatly bound with pink ribbon, served to relieve the heavier portions of the building. The chancel arch was slightly ornamented with sprays of Ivy, placed so as not to detract from the due proportions of its fine old "early English" style. Among fruits, the most effective was the Siberian Crab, small clusters of which were most effective, its colour and small size making it invaluable for purposes of decoration. In all these decorations, there was not a flower used larger than a Pompon Dahlia. Fern leaves, ornamented with Rose buds, and pinned here and there to the pillars, just high enough for the eye to catch their full beauty, were much admired. Sprays of Ivy, placed in its natural position, with two or three larger leaves round the base, had an effective appearance. In the wreaths, every leaf was as perfect in its way as could be procured, and as much of the surface was exposed as possible. The scarlet-leaved Oak, and various Maples, together with others that could be named, would be found useful for this kind of work. My object is to show what can be done with material to be found in every green lane, good taste and ready aptitude only being wanted to work it up into designs at once pleasing and effective. John Richardson.

Gazania Pavonia and Stachys speciosa.—Can anyone tell me where to get the true Gazania Pavonia. I have G. rigens, splendens, and uniflora. I have lost that good old plant Stachys speciosa, which is far superior to S. coccinea. Where can I get it again?—H. Harpur Crewe, *Drayton Beauchamp Rectory, Tring.*

Surinam Cherry.—What is the botanical name of this plant, and how should it be cultivated?—W. H. M. [Mimusops Elengi is sometimes called the Surinam Medlar or Cherry. In Ceylon, it grows to a large size, and its timber is used for building purposes. In this country it is cultivated as a stove shrub, and grows well in a mixture of three parts of loam and one of peat. It is, however, somewhat difficult to induce it to fruit. It enjoys a moderate bottom-heat during the summer months, and must be kept dry in winter.—J. Croucher.]

NOTES OF THE WEEK.

—— The strange-looking Darlingtonia is now in superb condition in the Botanic Gardens, at Glasnevin; the dome of the pitchers is somewhat larger than we noticed it in its native country. We believe this is the only instance of the successful cultivation of this plant in the open air.

—— We have been requested to state, that at the great fruit show of the Royal Horticultural Society, to be held on the 10th of next month, all varieties of Apples, for which there are special prizes in the "kitchen" classes, will be excluded from competing as dessert varieties.

—— It has been decided that competitors at Messrs. Hooper's Snowflake and Eureka Potato Exhibition, which is to take place on the 10th of next month, must deliver their Potatoes at South Kensington not later than Wednesday, the 3rd, as the weighing will take place on the 4th.

—— Messrs. Veitch & Son intend to hold another of their series of fruit shows next year, and to repeat their former schedule. It will be held in the gardens of the Royal Horticultural Society at South Kensington, simultaneously with the Society's show on the 19th of July.

—— The silvery and most graceful Acacia dealbata should be grown as a wall shrub more frequently. It covers a wall in the Botanic Gardens at Glasnevin, and flowers well in winter and early spring. There are many more favoured localities where it would be worth a place even for the sake of its Fern-like leaves alone.

—— Habrothamnus Hugelii is one of the greenhouse plants worth a place for the sake of its berries, not to speak of the flowers, which are handsome and profusely borne. The slender shoots become pendent with the weight of the berries, now of a deep crimson; and the effect is very good when the plant is trained over a slender arch.

—— Cordyline Banksii, a species cultivated with great difficulty in pots, is now growing freely in the open ground at Glasnevin. It has been planted out for some years.

—— The Birmingham town council, at its meeting on Tuesday last, voted £1,000 for the purpose of planting trees in the streets and open spaces of that town, and protecting them with guards.

—— Messrs. Sutton have intimated their intention of offering a series of prizes for vegetables in seven classes at the great shows of the Royal Horticultural Society to be held in 1876.

—— Cytisus Alschingerii is the name of a remarkable plant now beginning to flower in the Botanic Gardens, at Glasnevin. It flowers through the winter, and its blossoms are often gathered at Christmas. Those having gardens in mild and seashore districts should bear it in mind. It is quite hardy at Glasnevin.

—— Mr. William Bull has again offered his prizes of silver cups to be competed for at the great summer show on the 7th and 8th of June, and at the provincial show of the Royal Horticultural Society in 1876.

—— In the Royal Botanic Gardens, Singapore, Mr. Murton states that the Orchids are magnificent. Phalænopsis grandiflora may be counted by hundreds, and Cœlogyne Lowii, Saccolabium Harrisonii and S. Cruikshankii, Vanda Lowii, and a host of Dendrobes are quite naturalised on the trees; while Vanda Hookerii, V. teres, V. tricolor, Renanthera arachnites, R. coccinea, R. matutina, Grammatophyllum speciosum, and Arundinas are masses of bloom, planted out in beds fully exposed to the sun. The indigenous flora, which is very rich, comprises three species of Nepenthes, viz., N. ampullacea, N. distillatoria, and N. Rafflesiana, all of which are regular pests. They revel on the dry banks, fully exposed to the sun, and are always the first plants to spring up after the jungle has been burnt.

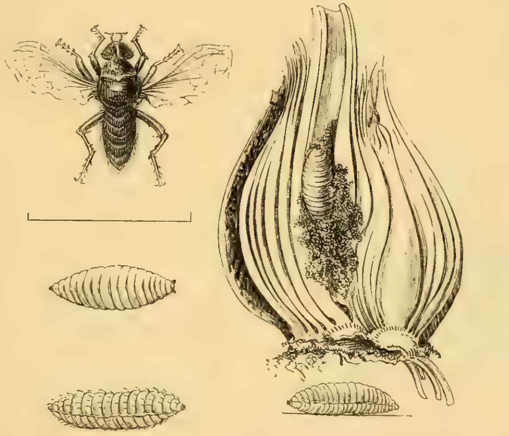
—— Many of our readers will have learnt, with regret, of the serious railway accident which befel Mr. and Mrs. Hole, near Newark, on Thursday night week. The accident to which we refer occurred to the train from Nottingham to Newark, due at the latter place at 7.20. It had safely passed all the intervening points of the route until a small brick bridge over a dyke was reached, not far from the Averham Weir Bridge. The bridge had in some way been so acted upon by the floods as to become unsafe, the water at the time being over the top of the line. When the train, to which reference has been made, reached this spot, the engine left the rails and, after running for about a hundred yards on the ballast, suddenly wheeled about and plunged into the water, which was so deep that there was nothing of the engine visible save the summit of its chimney. The carriage next to the locomotive, the one in which Mr. and Mrs. Hole were, fell over just at the edge of the water, and they had to scramble out of the windows, all the time expecting the carriage to topple over. Let us hope that both Mr. and Mrs. Hole have by this time recovered from the injuries and shock which they sustained.

THE FLOWER GARDEN.

THE NARCISSUS FLY.

(MERODON CLAVIPES.)

About 150 years ago, in the month of November, the great botanist, M. Bernard de Jussieu, brought to the not less celebrated entomologist Reaumur, a number of bulbs of the Narcissus, then recently taken from the ground, in each of which there was a large grub, which was gnawing it. These M. Reaumur bred and described. The Narcissus is still subject to the same enemy. One of our correspondents—a nurseryman—has sent us a number of bulbs similarly attacked, requesting information regarding it, and the best means of getting rid of it. The insect is the larva of a species of two-winged fly, something like a bee, being marked with yellow and black hairy bands, and belonging to the genus Merodon. It being, as yet, only in its grub state, we cannot determine with certainty the species to which it belongs, for there are more than one species of the genus. If the bulbs have been imported, which is most probably the case, the species is Merodon clavipes; for that species is the commonest on the Continent, Only one or two species have been met with in Britain, and these extremely rarely. Two or three specimens of M. clavipes have been got in Devon and Northampton, and one or two of M. Narcissi near London—all, we have litttle doubt, from imported bulbs. The habits of all the species are the same, however, and it is not improbable that several of the so-called species are merely varieties of one and the same; for specimens exhibiting the shades of difference which had been supposed peculiar to at least four different species have been bred from the same bulbs. The bulbs are usually pierced by only one grub, although in some cases two have been found in the same bulb. It is easy to distinguish those that have been attacked, for they are pierced by a round hole, which is possibly the entrance by which the grub has made its entrance enlarged by the escape of the rotten matter from within. If an attacked bulb is pressed between the fingers it has not the firmness of a sound bulb. The grub is somewhat like the rat-tailed grubs (to which section of flies it belongs), only it has no tail. It is of a dirty whitish colour, changed to brown by its living amongst the slimy matter discharged by itself, and proceeding from the decay of the interior of the bulb. When pulled out of the bulb, it contracts itself somewhat so that one end cannot be distinguished from the other, but it soon pushes out its head and projects two strong black hooks, which it uses not to only tear away the substance of the bulb, but also to drag itself along. The eggs appear to be laid in spring, the perfect insect appearing in April, and the grub feeds on the interior of the bulb during the whole of the summer and autumn. Towards the end of November, by which time it has pretty well destroyed the interior, it eats its way out of the bulb and buries itself in the earth, where it passes into the pupa state. The pupæ are dull brown, rough, and much wrinkled. It has not been observed where the eggs are laid; most probably it is near the base of the leaves, so that the young grub can easily make its way down between the scales. The native country of the Merodon is supposed to be the south of France, Spain, and Italy; and, when found in the north, it is believed to have been transported in the bulbs, in the same way that those above mentioned have been. On the Continent, its attacks are said to be confined to the Narcissus niveus; and there is no reason, therefore, to dread its establishing itself in Britain, and making havoc with our garden Daffodils. From what has been said, it will be seen that much cannot be done for bulbs which have been imported with the grub in them. It is in their native country that they must be fought. All that we can suggest is that they should be got over as early as possible, and carefully examined as soon as they arrive; and, if not too far gone, the grub extracted from the bulb, and destroyed. Unhappily, it makes right to the very heart of the bulb, usually destroying all hopes of flower, although it may not prevent the growth of offsets from the exterior ring of the bulb. A. Murray.



The Narcissus Fly.

MYRSIPHYLLUM ASPARAGOIDES.

Judging from the slight reference made in English journals to this plant, the old name of which was Smilax, I have come to the conclusion that its great merits as a decorative plant are either unknown, or but little appreciated. Introduced from the Cape of Good Hope as long ago as 1702, it ought by this time to be tolerably well known; but, undoubtedly from want of proper treatment, or neglect of some sort, its capabilities for decoration of many kinds have been to some extent overlooked. Here, in the neighbourhood of Boston, it is grown by the thousand; certainly more than twenty-five houses, some of them 100 feet long, and proportionately wide, are filled with it, and produce two crops a year. At large funerals, for church decoration at Christmas and Easter, and for large saloons, not less than 500 or 1,000 sprays of it are used at one time. Chandeliers and mirrors are wreathed with it, and in almost any form it fills a place which no other plant yet known can do. Its foliage is very delicate and small, of a Beech Nut shape, with a glossy green surface, and so thickly clothes the tiny stem, that it is literally a mass of shining green, softening any harsh colour, and heightening any light one—bending without breaking, holding its verdure for a long period, and, in truth, a wreath in itself of singular beauty. The sprays or vines, as usually grown, are 4 to 6 feet long, thick (with foliage) at the base, and tapering to the point, no larger than the finest silk thread. We have, just at this moment (June 26), one house filled with the Myrsiphyllum, from 4 to 8 feet high, and a pretty sight it is. It runs up on strings from 4 to 6 inches apart, and the whole house is a mass of verdure. These strings are attached to wires or slender rods, fastened at the base, and corresponding ones at the top. When wanted for use, the string is cut at top and bottom, and then very gently pulled out, leaving only the small stems and smaller branches and foliage intact—a perfect wreath that the most skilful bouquetiste could not imitate. As it is grown here, the roots are planted, from July to September, in a well prepared bed of light rich soil, a foot or more deep. After one or two waterings it soon starts, like Asparagus, grows rapidly, and in three months, after proper hardening off, is ready to cut. A little more heat is then given it, and it makes another growth, which, at the end of three or four months, is ready to cut again. It is allowed a rest in June and July, by withholding water, and keeping a cooler temperature, after which it begins the second year's growth, which will be ready at Christmas. The Myrsiphyllum is a great feeder, and it cannot be grown well in small pots; when cultivated in this way, three or four, or six roots are placed around the edge of 12 or 15-inch pots, and then the shoots attain the height of 10 feet. As a basket ornament it is the most charming of plants. To grow it well in this way three roots should be planted in July or August, in one of the rustic baskets so much used; the basket may then, for convenience, be placed on the ground, in a half-shady position, and watered freely. Then attach three strings, 6 feet or more long, one for each plant, to the basket, and fasten the other ends at the top, at a good distance apart, to keep them from running together. Here let them grow till just before frost, when the shoots will have reached the top; then loosen the strings at the top, and twine them in any form, either up the handle or round and round; cut, and pick out the strings, suspend the basket in a cool room, and you will have constantly before you an object, the beauty of which will never pall upon the senses, but will increase with the growth of the plants. All winter it will be a delight to you, as it was to me during one of the coldest snowstorms of January last, when visiting Mr. Hunnewell's place, at Wellesley. Overtaken by the storm, I stopped at the village hotel to dine, and two baskets of the Myrsiphyllum were suspended at each of the dining-room windows, which were white with driven snow, and the green of its foliage was intense and glowing and gracefully disposed round about them. Warmth is necessary to grow it, but when hardened off it is almost evergreen, a temperature of 45° being ample to preserve and keep it fresh for a long time. Our Boston florists supply New York and Philadelphia with thousands of strings during the winter—in fact, the great supply is from Boston, where it has been cultivated largely for years, and its growth seems to be well understood. The demand for the home trade is very large. The great wants of the plant are heat (when growing), plenty of water, and good root space. No plant is more impatient of cramping in small pots; when so treated its real beauty is gone. Such a plant ought to be grown in the same way, and in the similar quantities, for your market. It is almost as indispensable as Rose buds; in all choice decorations you need only to see it arranged in good taste to be at once fascinated by its slender twining stems covered with luxuriant verdure or thickly studded with beautiful little green berries, and, when in bloom, by the delicious odour of its minute greenish-white flowers. Certainly, Nature never gave us a vine so perfectly fitted for the purposes required as the Myrsiphyllum. We have three varieties of this pretty plant, neither of any particular value for cutting, but very beautiful for pot or basket culture. They are as follows:—1. M. longifolium, with leaves nearly twice the length of the species, and very long pointed. 2. M. variegatum, like the parent in size and shape of foliage, but distinctly and beautifully striped with white. 3. M. gracillimum, with the most minute foliage, of which I send you a specimen, a veritable Tom Thumb. C. M. Hovey.

THE HYDRANGEA.

In different parts of the country this plant is known by local names; in some parts of Yorkshire it has received the appropriate and expressive name of "Changeable." This name, no doubt, has been given to it by cottagers from observing the flowers change from one hue to another. Your correspondent, "H. E. W." (p. 328), recommends watering the plant with water in which rusty nails and iron filings have been placed, in order to get the blue tint which they naturally assume in autumn. Almost every person who has grown this plant knows that pure water will effect the same change upon the Hydrangea. Good culture and attention have a marked effect upon this plant in increasing the size and number of flowers upon it. To grow it to perfection, it should be potted in a rather heavy loam, mixed with a little charcoal and pieces of bone broken with a hammer. In such a compost as this, the plants will not require re-potting, except at considerable intervals. This plant certainly deserves more attention from gardeners than it has yet received. It is showy, and, standing rough weather better than most flowering plants, will be found very suitable for placing in vases or upon pedestals on lawns or in shrubberies. It is hardy, and will stand the winter, but I would prefer growing it in pots, as, by this means, it can be got into flower with more certainty, when it can be plunged out in open borders, or otherwise disposed of according to taste. When grown in open borders in late localities, the season is far gone before the plants come into bloom. After the flowering season is over, the plants can be stored away in any out-of-the-way place until spring, when they may be placed in a greenhouse or window. The pots ought to have a good soaking of water before this. A few days afterwards a weak solution of guano-water applied to the plants once or twice will benefit them greatly. It will be seen from what I have said that the Hydrangea is a very suitable plant for amateurs and those who possess a limited extent of glass. J. Thomson.

I am obliged to differ entirely from Mr. Tillery when he states (p. 328) that light soil has a tendency to produce pink flowers, and clayey soil blue flowers, on Hydrangeas, for, near the south coast of Cornwall, I have seen a row of these plants, perhaps twenty in number, growing by the side of a walk about 40 yards in length, in free, black, sandy soil, about 15 to 18 inches in depth on a gravelly sub-soil. Some of these plants produced nothing but pink flowers; in others the colour was blue, while others, again, were covered with blooms of both colours, but throughout the whole row there were considerably more blue than pink flowers. There were several other plants about the place, but none of them produced so many blue flowers as those to which I have referred, but they were growing much stronger. I am of opinion that short-jointed ripe wood is more likely to throw up blue flowers than strong free-growing shoots, and I should therefore recommend those who desire flowers of this colour to plant them in a somewhat poor soil, and never to disturb the roots after the operation has been completed. This will probably induce the formation of short-jointed wood, and blue flowers will, in all probability, follow as a natural result. H. C.

In order to produce Blue Hydrangeas, I have tried iron-rust mixed with the soil in which they are grown, in various ways and in different quantities; likewise rusty water, from the time when the blooms made their appearance until they were fully expanded; but never could I change a Pink Hydrangea bloom to a blue one. Last August, I saw a good bush of Hydrangea out of doors, where it has been growing for the last fourteen years; and every year the flowers are blue, and all the cuttings struck from it, and grown in pots or otherwise, possess that colour—a fact which leads me to believe that there are two distinct varieties, viz., a blue and a pink. Perhaps those who have been successful in inducing the blooms to become blue may have got the blue variety. W. W.

Eaglehurst.

Mixed Flower and Carpet Beds.—Frost and rough weather have taken the brightness out of our summer-flowering gardens. The past season has lifted into high prominence carpet bedding and correspondingly lowered flower bedding. If one could know beforehand what sort of summer we were to have, we could plant accordingly, but, as we do not, I think it wise to have a mixture of styles of bedding—a few beds of carpet-bedding plants and a few of flowering plants (and I like to mix amongst these scented flowers, such as Heliotrope), because, however beautiful plants with coloured foliage may be, we cannot dispense with flowers.—N. H. P.

Arundo Donax, or Reed Grass.—This shows off to great advantage when planted in spare places among low-growing shrubs, the formal heads of which are greatly relieved by its presence. Small pieces of it planted here in the above-named positions three years back, are now huge clumps, towering above the surrounding shrubs to the height of 10 or 12 feet, where their graceful reed-like habit and motion render them very attractive. There is a variegated variety of the above, having broad bands of white running the entire length of the leaf, rendering it one of the most striking and effective of all half-hardy variegated plants. The variegation appears to have considerably reduced its strength, as it seldom attains to more than half the height of the green variety, and not only is it reduced in strength but in hardiness likewise, as it will not stand out in winter with any safety. The habit of the plant is herbaceous, and it should therefore be cut down when the top becomes shabby or sufficiently ripened; after which the roots should be protected by shaking over them a slight coating of short litter or some other neat protecting material that will save them from severe frost. There is generally a certain formality and stiffness about shrubbery borders that may be greatly relieved by a judicious use of such plants as the above, having graceful and easy outlines. Arundo conspicua is a capital plant for the foreground in similar positions; where, in addition to its graceful pendulous foliage, its plume-like flowers show off to great advantage. This might readily be mistaken for the Pampas Grass, which it greatly resembles in habit and bloom, but is even more valuable as an ornamental plant on account of its dwarfer growth and earlier bloom.—J. Sheppard, *Wolverstone.*

HARDY FERNS.

In spite of what has been already written on this subject, the fact remains that hardy Ferns are not so generally grown in our gardens, and especially in our town gardens, as they ought to be; and, when we consider their adaptability for the cool and shady areas to be found in connection with most town dwellings, or even as pot plants in windows having a north or north-western exposure, it seems inexplicable that so much grace and freshness, and cool leaf beauty, are neglected, and their place in many cases supplied with leggy Fuchsias or scraggy Geraniums. I do not say that hardy Ferns are novelties in window or area gardens, because in some localities they are cultivated with success, one or two areas in Piccadilly, another in Spring Gardens, and several more in the west-end squares, being rendered attractive with them during the spring and early summer, when the fresh young fronds peep forth; while, even at this season, the many varieties of Scolopendrium and Polystichum are fresh and green, and, in some cases, growing freely. It is, however, in a shady corner or area facing a window that these plants may be made an especial attraction. By protecting them from dust and smoke with a glass roof, some charming outlooks may be obtained from the lower windows of town houses; and, to those who are fond of gardening, there are few better or more pleasing subjects to commence with than our native, North American, and Japanese hardy Ferns. They will grow—that is all the largest and most beautiful of them—in any fresh turfy soil with an admixture of sand and stones, or sandstone grit, and if a little peat is added for the smaller and more delicate kinds, so much the better. All elaborate attempts at rockery-making are unnecessary, all that is required being a depth of 12 or 14 inches of soil on a layer of crocks or stones, so as to prevent the accumulation of stagnant moisture at the root. When they commence to grow in spring, frequent syringings or sprinklings with tepid water are beneficial, adding, as they do, considerably to the freshness and beauty of the young fronds. Anyone interested in the culture of hardy Ferns and similar native plants should now visit the Fernery in South Kensington Museum, where many native Ferns, Liverworts, and Mosses luxuriate in perfection.

Hard Fern.

Male Fern.

Adiantum pedatum.—This is one of the most beautiful of Maiden-hair Ferns. It is a native of America, but is quite hardy in sheltered positions as far north as York, where it grows luxuriantly planted out in a shady rockery. The plant grows from 1 to 2 feet in height, its fronds being elegantly arched, as shown in our illustration. It does best in a cool, deep, peaty soil, but it may also be grown in a pot, either in a frame or in a plant case. Although formerly rare, it has been plentifully introduced during the last two or three years, and may now be readily obtained.

Athyrum Felix fœmina.—This is one of the most elegant and vigorous of British Ferns, perfectly hardy even on the exposed rocky mountains of Scotland, while in the western isles, in company with Sphagnum, Drosera, and small-leaved Ivy, it carpets the surface of the ground in the most beautiful manner imaginable. As a pot plant in the window, or planted out in the shady portions of the area, in any good soil, this plant grows luxuriantly if protected from dried sunshine, which gives to most Ferns a rusty appearance. If a few pieces of sandstone are placed round its roots, as shown in our engraving, so much the better, as they retain moisture, and keep the ground around the roots in a cool condition. In most country lanes the Fern may be had for the trouble of collecting it, while any nurseryman can supply innumerable varieties of it, some dwarf, some with cross-shaped pinnæ, some crested, and others depauperated in the most wonderful manner.

Polystichum angulare (common Hard Fern).—All the Polystichums have deep green finely-cut fronds, each segment of which is singularly pointed. In this genus there are several fine species, the best of which are angulare and its varieties; P. setosum, a kind having the base of its fronds clothed with orange or brownish chaffy scales; and P. Lonchitis or Holly Fern, which has simply pinnate fronds, the individual pinnæ of which resemble a Holly leaf, whence the name. All succeed well in pots, but do best when planted out in fibrous loam and peat, to which a few lumps of sandstone may be advantageously added. The fronds of nearly all the Polystichums are elegant in form, and are peculiarly adapted for cutting and arranging with hardy flowers in large vases or stands, as their peculiar hard texture enables them to endure the dry atmosphere of a room for a considerable time with impunity.

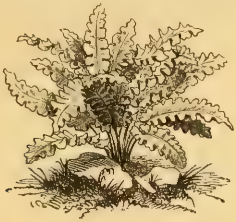
Ostrich Fern.

Polypodium vulgare (common Polypody).—This is a free-growing plant, common on hedges, banks, and on old trees, where it overruns stems and roots in all directions. It also grows well on low moist stone walls, especially on those which are damp enough to encourage the growth of Moss or Liverworts. Its fronds are about a foot long, pinnate, and of a deep green colour, the bright orange-coloured clusters of spore cases behind adding to its ornamental appearance. Of this there are several varieties, one of the prettiest of which is the light green-leaved barren form, known as P. vulgare cambricum (or Welsh Polypody), a kind which has laciniate pinnæ, and one which has a pretty appearance as a pot plant. P. vulgare, the hibernicum or Irish Polypody, is also a distinct kind, and one which grows vigorously either as a pot plant or when planted out in a bed of loam, sandy peat, and stones.

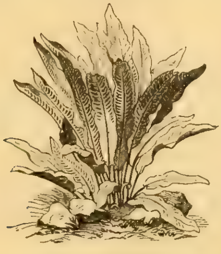
Osmunda regalis (Royal Fern).—This is, without exception, the noblest of all our native Ferns, and one which is most valuable if rightly used as a decorative plant in gardens. It naturally prefers a spongy bank, where the fibrous roots can descend into water below, but it may, nevertheless, be cultivated with success either in boggy situations among smaller Ferns and Sphagnum, or by the margins of ornamental water. With a little care and skill it may be grown in pots, and is frequently exhibited grown in that way in collections of hardy Ferns along with O. cinnamomea, O. Claytoniana, and other

North American species. It succeeds best when planted out and plentifully supplied with water. It is not suitable for window culture nor for area gardens; but, for planting on moist spongy places, on the lawn; or, as has been stated, for fringing the margins of ornamental water, it has no equal. During the past summer some plants of it beside the stream in the dell at the head of the Serpentine, in Hyde Park, grew vigorously and were very ornamental.

Lastrea Filix-mas (Male Fern).—This is perhaps the most common of all our native Ferns, and one which is strong in growth and vigorous in habit. It succeeds anywhere — even in shady backyards in the very heart of London; while, in the moist corners of suburban gardens, we have seen it growing as vigorously as in its native woods, ditches, or rocky hill sides. It is elegantly vase-shaped in growth, each frond curving gracefully outwards; and grows from 2 to 5 feet in length, and is of a deep green colour. It is suitable for planting at the back of the Fernery, or its tall and robust habit might be taken advantage of to form a screen or shade to the smaller and more delicate kinds. There are several dwarf, bifurcate, and crested forms; all beautiful.


Crisped Hart's-tongue.

Scolopendrium vulgare (Hart's-tongue).—This is one of the commonest, and at the same time one of the most distinct and beautiful of all our native Ferns, and one especially suitable for pot-culture or for planting out in cool shaded area gardens in towns, where it retains its freshness and verdure nearly all the winter, or until the tender green young fronds begin to uncurl their downy points in the spring. It grows freely in almost all soils and situations, but when growing should receive a copious supply of moisture, and if syringed frequently so much the better. The country lanes, especially in hilly or rocky districts, both north and south, are frequently fringed in the most beautiful manner with this—the brightest and freshest of all our native Ferns, and the only one we have which in any way resembles the gigantic Neottopteris or Bird's-nest Fern of Australia, which also has simple glossy-green fronds. Of all our British Ferns, if we except the ubiquitous Lady Fern, this is the most variable, some of its forms being very beautiful, and others highly curious and interesting. Our illustrations represent the typical form of the plant, together with two distinct forms, S. vulgare erectum, a kind having long fronds and an erect habit, and S. vulgare crispum, a variety which has the margins of the fronds curiously puckered or undulated, owing to the margin or blade of the frond being developed in excess of the polished mid-rib. Some of the dwarf, crested, forked, and irregularly developed varieties are very pretty, and a selection of the best and most distinct among them should find a place in every collection of hardy Ferns.


Tall Hart's-tongue.

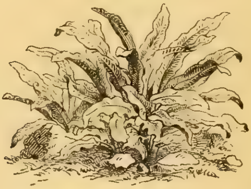
In addition to the foregoing, the following varieties of Scolopendrium are so distinct and effective, either in groups or masses on rock-work, that they deserve to be generally grown in nooks and corners among hardy Cyclamens, Hepaticas, autumnal Crocuses, and Colchicums, as they are fresh and green when most herbaceous plants have gone to rest, or they may be readily grown on on a shaded herbaceous border, if a few stones are placed around their roots:

S. vulgare bi-marginatum.—This grows nearly 1 foot in height, and has fringed or laciniate fronds, about half-in-inch in width. A sub-variety of this again has its narrow fertile margined fronds very much crested at the apex, a circumstance which renders it at once singular and ornamental.

S. vulgare cervicornu.—This is often popularly termed the Stag's-horn Hart's-tongue, as its fronds are curiously branched or forked, and form dark green feathered heads, often as much as 5 inches in width. The margins of the fronds are finely toothed, something like a fine saw, and, when well grown, it forms a dense cushion-like mass, very distinct from the tall growing forms.

S. vulgare columnare.—This is one of the prettiest of all the Hart's-tongues; it grows in a tufted manner, and rarely exceeds 6 inches in height, the tip of each frond being divided into a neat little multifid crown. Like the last, it grows well in a pot, and, on account of its neat dwarf-growing habit, it is especially adapted for culture in a cool Wardian case, cold frame, or pit. Grown under some slight protection of this kind the fronds are cleaner and fresher than when they are more fully exposed.

S. vulgare contractum.—A very narrow and elegant habited form, which becomes contracted an inch or two below its apex, while at the summit it spreads into a dense head. It varies from 10 to 12 inches in height, and is so distinct and pretty when well grown that it should find a place in even the most select collection of Hart's-tongues.


Common Hart's-tongue.

S. vulgare digitatum.—This is a strong growing form, often attaining a height of from 15 to 16 inches, and not unfrequently the fronds are forked from near the base, each division being terminated by a spreading crested head from 8 to 10 inches in breadth, reminding one of a loose-headed cockscomb. This plant is luckily very common, and is very distinct for groups or masses in the outdoor Fernery, it being rather too robust for a Wardian case.

S. vulgare fimbriatum.—A highly variable kind, often producing two or three sorts of fronds on the same plant—some broad, others narrow, whilst some are intermediate in form, being interrupted or contracted at intervals. These fronds rarely reach an inch in width, and are beautifully serrulate, and puckered or frilled along their margins. It grows freely, and is suitable either for a pot or for the outdoor rockery or area garden.

S. vulgare irregulare. — This variable plant was originally discovered in the Channel Islands. There are two or three distinct sub-varieties of it, and all of them are valuable, either as pot plants in a shady situation, or for planting in the rock or root garden, for the sake of their bright green irregularly-lobed foliage. The fronds rarely exceed a foot in length, and are irregularly inciso-dentate or cut so deeply as to be almost pinnate, while the apex of the fronds are often furcate and sometimes slightly clustered or crested.

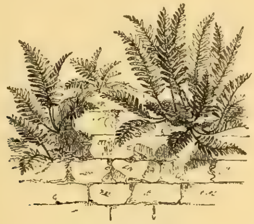
S. vulgare latifolium.—A robust and useful variety, of nobler port than some of the preceding forms, its fronds being not unfrequently from 12 to 16 inches in length, and proportionately broad. It was originally found in Devonshire, that Fern paradise, where one is astonished, not more by the immense number of Ferns which everywhere abound, than by the size many of the species attain. This variety has fronds, obtuse at the apex and curiously marginate.

S. vulgare lato-multifidum.—This has fronds from 6 to 19 inches in length, their summits being curiously forked and contorted, their margins cremated, and apex irregularly crested. This variety was originally found in Somersetshire, and is well worth adding to any collection.

S. vulgare marginatum.—A robust plant, producing erect and narrowed fronds, which vary from 12 to 18 inches in height, the broadest rarely exceeding 1 inch in breadth; while the margins are often apparently double, owing to an excurrent vein behind the frond developing itself into a narrow membrane. This variety grows equally well in pots and in the open air, and may be introduced into the Wardian case wherever a tall slender-habited plant is desirable.

Irish Polypody.

Struthiopteris germanica (Ostrich Fern).—This is a Continental species, and one of the noblest of all hardy Ferns, when well grown, its habit being even more majestic than that of our native Lastreas, while it is equally hardy. On moist mossy lawns, by the spongy margins of streams or other ornamental waters, this plant and its allies may be used with advantage, and if carefully and skilfully planted along with the Osmundas, some tasteful and striking effects may be produced. It will grow almost anywhere; I have seen it used in herbaceous and shrubbery borders with excellent effect. Our figure of it gives some idea of the noble port assumed by this plant, which, when well grown, forms vasiform masses, from 4 to 5 feet in height, each frond being nearly as feathery and graceful in its curvature as an ostrich plume, our English name being evidently given it owing to this circumstance.


Common Polypody.

Welsh Polypody.

For the following list of evergreen and deciduous Ferns I am indebted to Mr. Sim, of Foot's Cray:

EVERGREEN.

Asplenium, all British kinds; Camptosorus (Asplenium) rhizophyllus; Ceterach, all known kinds; Cryptomiums of all kinds; Blechnum and Lomaria, all known kinds; Lastrea Filix-mas and all its varieties, L. Filix-mas paleacea (pseudo-mas of Wollaston) and all its forms, L. remota, L. dilatata and all its forms, L. cristata, and its varieties spinosa, uliginosa, &c., L. æmula (Fœnisecii, recurva), L. intermedia, L. Goldiana, L. marginalis, *L. atrata, *L. opaca and its variety varia, *L. erythrosora, *L. Sieboldii (Pycnopteris, Moore), *L. Standishii (Polystichum concavum); Polystichums without an exception, whether British or exotic; Scolopendrium vulgare and all its varieties; *Woodwardia japonica, *W. orientalis, *W. radicans and its varieties—(All of the Doodia group of Woodwardia are evergreen, and also hardy in south Devon, Cornwall, the Isle of Wight, and other mild parts.)—Polypodium vulgare and its varieties, whether British or exotic.

Bird's-foot Maiden-hair.

DECIDUOUS.

Allosorus, both British, N. Indian, and N. American kinds; Athyriums, both native and exotic; Adiantum pedatum (the only known hardy Maiden-hair Fern); Asplenium angustifolium (the only known true Asplenium that is deciduous); Diplazium (Asplenium, Athyrium) thelypteroides N. American); Dennstædtia (Dicksonia) punctilobula; Cystopteris, all known kinds; Lastrea Filix-mas var. abbreviata, L. propinque (of Wollaston) and all of its forms, L. alpina (dilitata var. alpina, Hort.), L. rigida, L. Thelypteris, L. decurrens, L. montana (Oreopteris), L. novaboracensis (N. America); Onoclea sensibilis; Pteris aquilina, and its American form called caudata; Struthiopteris of all kinds; Osmunda of all kinds; Woodsias, all varieties; Polypodium Phegopteris and its varieties, P. Dryopteris, P. Robertianum (calcareum), P. hexagonopterum (N. America); Woodwardia areolata, W. virginica; Botrychiums of all kinds.

F. W. B.

Royal Fern.

Veronica rupestris.—This forms an attractive object on the rock-work at Kew, where it forms dense glossy green mat-like masses of bright green foliage completely covering the stones. The flowers are of a deep rich blue, paler beneath, and are borne on slender spikes. At first sight it looks exactly like Lithospermum prostratum, but its foliage is brighter and fresher, and its flowers are fully as beautiful, although not so durable.—B.

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* Scarcely hardy Ferns.

TWO NEW ALONSOAS.

Having this season grown two new varieties of Alonsoas, of which seed was offered this spring, I believe, for the first time, and which are named respectively A. myrtifolia and A. linifolia, I think it may interest some of your readers to learn that the first-named variety is of vigorous and branching habit, and reaches a height of about 2 feet, producing freely its large, deep orange flowers, which, though following one another in quick succession, are individually short-lived, as within a day or two after expansion they become fertilised, and drop off, when numerous pointed seed-pods at once begin to develop themselves. This would be a decided acquisition if the flowers lasted longer on their stems, and if a greater number were open at the same time; as it is, you seldom see more than two or three on each branch at one time. The second named variety, A. linifolia, I consider to be utterly and entirely worthless, being much less vigorous in habit, and exceedingly shy in the production of its small and inconspicuous blooms, some of my plants, though, apparently attaining their full development, not expanding a single blossom during the season. I should like to know if the variety mentioned by "H. C." (see p. 340), under the name of A. incisifolia (a name quite new to me), is identical with the old variety of this plant, known under the name of A. Warczewiczii, the low-growing habit of which, and the great abundance with which its deep orange blooms, with a conspicuous black centre, are produced, make it a most desirable plant for culture in the greenhouse, or for the decoration of the summer border. W. E. G.

Belladonna Lilies.—These seem to thrive wonderfully here. Some years ago there was planted a single row of roots along the bottom of a south wall, the wall being about 100 yards long. The plants are now in flower the whole length, and form a line measuring from 1 to 2 feet in width. That some idea may be formed of the way in which they increase, I may mention that in 2 feet space in this row I counted thirty-six scapes, each scape supporting from five to eight fully expanded flowers; they get but little attention, never receiving so much as a top-dressing. In the open border they seem to do equally well, whatever place in the garden they occupy; masses of it are now in flower, measuring from 2 to 3 feet through, even in situations where they never receive more than an hour's sunshine during the longest day.—R. W., *Cork.*

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Bedding Calceolarias.—The best three yellow bedding Calceolarias are aurantia, Golden Gem, and canariensis. What Invisible may turn out to be I will not predict; it should be tried by the side of canariensis. By far the best autumn-blooming variety is amplexicaulis.—E. Bennett, *Rabley.*

Sub-tropical Plants.—Are Aralias easy to grow and keep through the winter, and will they do as well on the south bank of the Trent as Cannas? Will some one kindly furnish a short account of the treatment which these plants require?—N. H. P.

Gaura Lindheimeri.—I agree with "Oxon" (see p. 331) that this is one of the prettiest and most useful perennials that can be grown. A small bed of it here has been covered with its elegant spikes of white starry flowers ever since June, and, if the frost will only let them, there are plenty more to come. —H. Harpur Crewe.

Tradescantia zebrina a Suitable Plant for Undergrowth.—I find this old inmate of our stoves to be well adapted for quickly forming a dense undergrowth for sub-tropical plants. It has all the necessary qualifications for covering bare surfaces, being of rapid growth, and it is readily propagated by means of cuttings.—J. Groom, *Henham.*

Single Dahlias.—Amongst my 1½ acre of Dahlias, planted out to prove whether they are true or not, I have nothing so conspicuous as D. coccinea, which I believe was the first of the family introduced. It is of a neat dwarf growth, and blooms most profusely, and it is my intention to plant it largely for bedding, for its colour is bright and showy and its height not more than 18 inches.—H. Cannell, *Woolwich.*

Autumn-flowering Plants.—Amongst herbaceous plants which are very showy at the present time are several varieties of Asters, Chrysocoma Linosyris, Centrocarpha fulgida, the beautiful white Anemone Honorine Jobart, Solidagos, both tall and dwarf, and Saponaria caucasica. Amongst annuals, Venidium calendulaceum is in fine condition just now.—H. J. C., *Grimston.*

Saxifraga Fortunei.—This is one of the prettiest plants now in bloom on the rock-work at Kew. It has deep green, roundish heart-shaped, fleshy leaves, lobed at the margin, and bears large panicles of pure white long-petalled flowers on pale green scapes from 12 to 16 inches in height, while the dark reddish-brown bracts on the stem add to the ornamental appearance of the plant.—J. B.

Arum italicum.—This has been strikingly attractive for some time past in the herbaceous border here. Were it only for the ornamental character of its foliage, it would be worth growing; but what renders it valuable as a decorative plant in the autumn is the large number of spikes of bright red glassy-looking berries which it bears. These are about a foot high, and more than half the length is closely packed with brilliant fruit as large as ordinary sized Peas and very showy.—J. Sheppard.

Evergreen Wall Plants.—Will anyone recommend me some quick-growing evergreen creepers to plant against a red brick house having a south aspect? I have Cotoneaster, Pyracantha, and Magnolia.—M. G. T., *Shropshire.*

THE FRUIT GARDEN.

ROOT-PRUNING FRUIT TREES.

There can be no doubt that over-luxuriant fruit trees are greatly benefited by root-pruning, and, this being the best season for the performance of the operation, I would direct the attention of the inexperienced to this important subject. It may be argued against root-pruning that it takes considerable time to perform it properly; this I admit, but, on the other hand, a barren tree may be brought by it into a state of fruitfulness, and the operation, as a rule, need not be performed more than once or twice during the existence of the tree. This remark applies particularly to trees grown against walls, and to standards, for, when once they bear a heavy crop of fruit, the flow of sap that previously was expended in producing a rank luxuriant growth, then goes to the production of useful fruit and the formation of blossom buds for future years. Trees grown as pyramids or in the dwarf bush form, will no doubt require root-pruning every two, three, or four years, according to the quantity of fruit they produce. Where trees are grown as dwarf bushes or pyramids, I would advise that a number of them be root-pruned each year; and, thus systematically working at them, the whole may be compelled to assume the shape and form desired. The sooner root-pruning is performed now, the better, not only as regards next season's growth, but also as respects the fertility of the tree. When the operation is performed in September—and it sometimes may take place as early as this, or even earlier, if the tree is bearing no fruit, and the autumn prove warm and sunny—it will tell somewhat on the productiveness of the tree the following season. But when the pruning is done in November or during the winter months, the luxuriant growth will be arrested next summer and blossom buds will be formed, but a greater degree of fruitfulness may be expected in the succeeding summer, that is, in 1877. When trees are first planted on mounds or hillocks, and they are mulched on the surface annually, when once in full bearing, they do not require much root-pruning, and, beyond summer pinching, but little pruning of any kind, as the annual crop of fruit will almost exhaust the strength imparted by the mulching, and the latter will encourage the roots near the surface, which will produce an effect upon the trees very different from that which may be expected if the roots go deep. Root-pruning must be performed with great care. When coarse roots, which have supplied the trees with an excess of sap, are cut back or shortened, it will be found that a number of fibrous roots will be formed which are necessary to ensure the future fruitfulness of the tree, and in root-pruning care is necessary not to injure these, as the tree is very likely to be thus brought into a state of debility, instead of its fruit-bearing capacity being improved. All the damaged points must be pruned back to where they are sound, and this will encourage the formation of young fibres, but there are often cases where the tree grows too rank, both at root and branch, from the border being too rich, or from neglecting to cut back runaway roots at the point where they originate. These trees, if they are not too large, must be carefully lifted, a deep trench being dug round them, and the soil worked away from their roots with a four-tined steel fork. When their size is an obstacle to transplanting, which is only another name for root-pruning—say, with established pyramids, 7 or 8 feet high—I would proceed as follows:—Dig out a trench, 3 feet from, and round the tree, with a steel fork, working away the soil from among the fibres as the work proceeds. When the trench has been excavated below the level of the principal roots, cut off with a sharp knife all the thick roots, close to the ball. If any are suspected of going straight down, work underneath the ball with the fork, and cut them off. When this has been effected, fill in the trench, making the soil firm as the work proceeds. When the trees are young, and growing too freely, the most economical plan in the end is to lift and re-plant them every two or three years. By this means, and a liberal and judicious use of the pruning knife among the roots, the cultivator, in a very few years, will be rewarded with useful, fruitful trees, that will bring him in a profitable return as a compensation for his labour and outlay. As the trees become older, lifting them entirely will not only be out of the question, but will become unnecessary; and, on the appearance of any very luxuriant shoots during the growing season, these can be repeatedly pinched back, and a trench opened in the autumn round the tree, when the roots may be shortened back as described above. When the trees become established in a fruitful condition, and their roots, having penetrated into the soil in all directions, are furnished with useful fibres, the fruit produced will prevent much extension of the branches, and the manipulation of the roots will become unnecessary. I would caution the inexperienced cultivator against a very common error which is too frequently committed, viz., cutting the roots too severely at the first operation. I do not advocate a severe root-pruning at once, but would rather prefer that the operation be performed at different times. If the tree is a standard and not over luxuriant, two opposite sides only should be operated upon, the other two being left until another year. If the tree is growing against a wall, a line should be stretched across the border from the bole of the tree, and at right angles to the wall. The line should then be swept round to the wall, and the trench should follow the quarter-circle thus described. As soon as the roots have been cut, the trench should be filled in, a little fresh soil being used if the roots are old. The other quarter-circle must be operated upon another year. Cases have come under my own observation where the trees have been large, and the roots have been cut too close at the first operation. The result has been that they have either died right out, or dragged on a miserable existence; but, in all cases where the operation has been properly performed, the trees have thriven, and have yielded profitable returns. R.

FRENCH PEARS.

In the Aube district in France there are grown unusually fine selections of Pears, a fact of which one may easily be convinced by a visit to the orchards, gardens, or markets there. Both soil and climate are favourable to the cultivation of the Pear tree, and if the number of varieties is large that circumstance enables growers to supply the market with successional crops, and to prolong the season during which the fruit is ripe. We shall pass in review the best kinds, placing them in the order in which they are fit for use—as summer, autumn, and winter Pears—and we shall then add a few remarks on the varieties suitable for cooking or for preserving, omitting the kinds used in the manufacture of perry and the merely local varieties, which are comparatively unknown outside their own districts. Strawberries, Cherries, Raspberries, and Gooseberries scarcely make their appearance before the earliest Pears are to be seen in the market. June furnishes a number of small Pears called Sept-en-gueule, St. Jean, &c., the chief merit of which consists in their earliness. We should, however, prefer eating an English Cherry, or a Belle de Croncels Strawberry whilst we waited for the appearance of the Doyenné de Juillet, a superior Pear of a handsome colour, or the Citron des Carmes, its superior in point of size, and André Desportes, a melting fruit when produced on a vigorous tree. The Blanquet, having crisp flesh, precedes Cuisse-Madame, which is called in the Aube Madeleine. The Buerré Giffard thrives well as a dwarf, and succeeds the kind last-named. As specimens of what an orchard tree should be like few will bear comparison with the varieties De Fosse and Deux Yeux. German planters, however, prefer Monseigneur des Hons which, with the Genéréuse Troyenne and Rousselet Gibey we owe to M. Gibey Lorne, of Troyes. It is necessary to allude to the little Rousselet de Reims, the favourite of children and pastrycooks. The following are all large-sized kinds of good quality, viz., Clapp's Favourite, a brisk American red-tinted variety; Doctor Jules Guyot, a recent addition to our stock, but one which is already justly celebrated—so much so that the Belgian pomologists recently declared at Ghent that it was superior to the Williams's, which is an embossed and scented fruit; and the Beurré d'Assomption, a juicy and refreshing Pear, which makes up a quartette of the best mid-August Pears. Others however, must not be passed over:—Madame Treyve is prolific and sweet; Monsalard, cargoes of which arrive at the Paris markets from the Girondin orchards; the hardy Beurré d'Amanlis, which is indispensable in every orchard worth calling such; the Doyenné de Mérode, also called Doyenné Boussoch, Double Philippe, &c. Belonging to this period of ripening, which commences at the end of the summer and finishes at the beginning of autumn, are the Beurré Lebrun, raised by Denis Guéniot from the Deux Sœurs and a more aristocratic Pear, the skin being smoother and cleaner. It produces a cylindrical fruit as large at one end as at the other.

Autumn Pears.

At the head of these, which are the most profitable to grow, stands the Beurré d'Angleterre which are sold four for a halfpenny in the streets, and the trees produce fruit to the value of £2, £3, or £4. Good Pears abound at this season. We have the Beurré Hardy, which melts in the mouth; Beurré Dalbret, of vinous aroma; Seigneur Esperen, sweetest amongst Pears; Beurré Superfin, worthy of bearing its high sounding name; Fondante des Bois, crisp to the taste; Hélène Grégoire, which is almond-flavoured; Comte Lelieur, exquisitely sweet and derived from the Croncels, and is named after the author of the "Pomone Française." Our espaliers furnish the unrivalled Beurré Gris and Doyenné Blanc to which succeeds the Crassane, which unfortunately is not a prolific bearer. From the middle of September to the middle of October, the Louise Bonne d'Avranches, a gem amongst French Pears, but which, as regards the fruit, has a rival in the Doyenné du Comice, which is, however, less fruitful. The Beurré de Capiaumont, has not this fault as far as I know. Ripening after the last named comes the De Tongre, having a glazed skin and acidulated flesh; Beurré d'Apremont, from the Haute-Saone, which is suitable in districts where high winds prevail, and five or six Pears for amateurs viz., Fondante Thiriot, a vigorous kind; Auguste Mignard, which is very productive; Nouveau Poiteau, ripening without changing its colour; Vice-President Delehaye, of a most agreeable flavour; and Beurré Dumont, easy of transport. Sucrée de Montluçon is rapidly acclimatised in the Aube, thanks to its productiveness; but I do not recommend it for exposed orchards. The same observation applies to the Alexandrine Douillard, having firm flesh, and to the Colmar D'Arenberg a continuous grower, and a large fruit with a slightly astringent taste. An example of extraordinary fecundity is afforded in the Duchesse d'Angoulême and the Beurré Clairgeau, of French origin. As soon as these magnificent specimens appear in the Paris markets they are bought up. A fruit garden without these trees must certainly be considered incomplete. The green and yellow variegated Duchesse is well known, and the Duchesse Bronzée, which ripens slowly, has a somewhat marked vinous bouquet. Soldat Laboureur, according to certain gardeners, is too apt to fall from the tree. The Fondante de Panisel also called Délices d' Hardenpont, is superior in this respect, and bears carriage in baskets well. The Beurré Six is not endowed with these good qualities, but, on the other hand, its flesh is of very fine quality; Madame Bonnefond is remarkable for its strong branches and the Figue for its agreeable sweetness of taste; it is to be regretted that the tree is not very prolific. Two Belgian varieties, Triomphe de Jodoigne and Beurré Diel, are of massive growth and produce large and excellent fruit, whilst it has two French rivals in Beurré Bachelier and Beurré Baltet pere, which, in point of size and flavour, are not a whit inferior to them. The last named fruit is produced on a low sized tree of extraordinary fertility and has obtained for M. Baltet, sen., a medal.

Winter Pears.

The Beurré d'Hardenpont and Passe Colmar are in season at Christmas; no kind is more succulent or more gratifying to the palate than these. The less exacting will, perhaps, content themselves with the Curé, an excellent Pear, however, in a poor situation, and one that prefers the climate of the Vine to the humid soil around Troyes. The little Echassery, so popular in Switzerland, must not be forgotten; or the Bézy Chaumontel, which is bitter when grown in a cold locality; the Sœur Grégoire, less capricious, and whose heart does not belie her face; the exquisite Beurré Millet, small, and borne in clusters; the good old Saint Germain, which requires the shelter of a wall; the Beurré Rance, hardy in calcareous districts of the Jura; nor, finally, Nouvelle Fulvie, the tree of which has contorted branches, and the fruit a fine appearance, with a delicate interior. Four novelties present themselves—Marie-Benoist, Royale Vendée, Passe Crassane, and Olivier de Serres. Raised in France, their fine qualities have led to their being spread there far and near. Nothing can possibly be said except in their favour. The Doyenné d'Hiver, for some time, has become deformed and poor-looking, but, where it succeeds, is a very superior fruit. The Doyenné d'Alençon, which is less fertile, is healthier, and is not affected by low temperatures. An excellent little Pear, for February and March, is the Joséphine de Malines, the pulp of which is salmon-coloured like that of Madame Hutin. After Beurré Perrault, melting yet crisp, no fruit is superior to Bergamotte Esperen, the season of which is prolonged until May. It is one of the most precious jewels in the pomological casket of France.

Kitchen Pears.

Cooking varieties of Pears, or those for preserving, are of importance in every household. There is a considerable number of melting Pears, more particularly those having a red skin, which are thoroughly fitted for stewing or baking; there are, however, special kinds which are exclusively used for these purposes. Amongst these are Certeau d'Automne, which abounds in Burgundy; Messire Jean, for cooking in wine, and for preserves; Martin Sec, excellent when stewed; Catillac, of immense size; and Sarrasin, of a red colour when cooked. Here and there in the Aube district the Angoucha and Grivolé are met with; they are both useful for kitchen purposes and for making perry. Besides these there are Râteau Gris, much esteemed when stewed in slices; the Balosse in La Marne and the Prêtre or Calouet, which are sent in large quantities to the Saint-Remy markets. This article may be concluded with a list of some of the monster Pears, amongst which are Van Marum, long and grey; and an autumnal variety, Belle Angevine, which keeps well. In 1874, Jersey produced a specimen of this variety which weighed 5 lbs. 8 oz., and was sold for £10. C. Baltet.

Birds and the Beurre Bosc Pear.—I find that this variety of Pear is more injured by birds than any other kind grown here, owing to its being so juicy, thin-skinned, and delicious in flavour. The tomtits first began to peck small holes in the stalk end of the fruit, and then blackbirds and thrushes complete the destruction in a very short time, unless it be netted up. In the case of a collection of Pears grown on a trellis here, as soon as all the fruit of the Beurré Bosc were gathered, the blackbirds next attacked the Seckle, a small deliciously perfumed American Pear; but they have not attacked, as yet, any of the hard-skinned late sorts.—William Tillery, *Welbeck*.

Prince of Wales Nectarine.—We have two young healthy looking trees of this Nectarine, one in a house in which the fruit was ripe in July, the other in an unheated orchard-house. Each had a fair crop of large, badly coloured, and inferior flavoured fruit, and two-thirds of it split before it was ripe. I cannot attribute the splitting to bad treatment, as the fruit of all the other Nectarines and Peaches in the same houses was excellent in every respect. I should be obliged to any of our correspondents who have grown this Nectarine, if they will give their experience of it, as I do not wish to uproot the trees if they can be made to grow good fruit. I may mention that I lifted the tree in the orchard-house last autumn. —J. Coomber, *Hendre Park, Monmouth*.

Peach-house Borders.—If "A. R. W.'s" soil (see p. 353) is at all of a calcareous nature I would advise him not to put too much mortar rubbish in his Peach-house border. One barrow-load to one cart-load of soil would, in that case, be sufficient. I am of opinion that more failures occur through inside borders in Peach-houses being made too light, and, consequently, kept too dry, than through any other cause, as, though the Peach dislikes stagnant water at the roots, I have found that the most healthy, fruitful trees are those growing in strong-holding loam resting on a well-drained bottom. The soil here is of that description, and finer trees and better crops I have never seen. The following are six good sorts and excellent bearers:—Grosse Mignonne, Royal George, Bellegarde, Red Nectarine Peach, Barrington, Walburton Admirable.—H. J. C., *Grimston*.

—— As all kinds of stone fruits require lime to be present in the soil in some form or other, "A. R. W." may mix mortar-rubbish with the loam for his Peach border with advantage, but only in such proportions as the nature of the loam demands. If calcareous, a very small proportion of mortar-rubbish should be added, say one cartload to twenty of loam; but, if stiff or plastic, a much larger percentage may be mixed with it, and with the best results. The best six kinds to plant are Early Louise, Early Grosse Mignonne, Alexandra Noblesse, Violette Hâtive, Walburton Admirable, and Princess of Wales.—W. Wildsmith.

The French Peach Malady (Le Meunier).—On this subject we find the following note in the Bulletin of the "Annales de la Société Entomologique de France," dated 8th January, 1851:—"M. Guerin-Méneville announced that he had found on the shoots of the Peach trees attacked by the disease called 'the miller' innumerable quantities of the larvæ of mites. He thinks that these young arachnidæ are not foreign to the disease of 'the miller,' which consists of a sort of white dust, which covers all the Peach trees at Montreuil, near Paris. These mites, invisible to the naked eye, and even to the ordinary magnifying glass, are transparent, and they have only four feet. They rather resemble the larvæ of Tetranychus tiliæ, which Turpin has described and figured in a memoir inserted amongst those of the Academy of Sciences; only, Turpin figures these young mites with two pair of feet in front and four other organs, representing the other feet, each composed of a tubercule and a hair or flexible thorn. Dugès has also seen this species in the galls of the White Willow and Lime. The figure which he gives of it resembles much more those which M. Guerin-Méneville has made of the young Peach tree mites, and also shows, like them, four feet." The young mites here spoken of obviously belong to the genus Phytoptus, although it is still an undetermined question whether they are the young of some other mite or not.—A. M.

Strawberries for Forcing.—It is usually the practice in preparing Strawberries for forcing to pot them singly when taken up, using thumb-pots for the purpose. Some, however, put the runners at once into their fruiting pots, plunging them in the Strawberry quarters. The latter plan I should say is highly objectionable, inasmuch as the plant would be little better than if merely subjected to ordinary treatment, leaving out of the question the labour and disorder attending the operation. Where there are good plants to select from, and if the soil is ordinarily suitable for the growth and rooting of runners, there is nothing to prevent excellent plants being produced by merely selecting carefully the best runners, and, with a handfork detaching them from the parent plant, and potting them at once. For ordinary purposes, this plan will answer perfectly; and if the plants are obtained early in the season, which is the main thing, as good plants may be had the one way as the other. These remarks are the result of experience, and I should never care to layer Strawberries again, except where the soil was so hard that the runners could not root in it.—M. C.

Lord Bute's Vineyard.—However sanguine Mr. Pettigrew may be of the results to be obtained by this undertaking, he, unfortunately, has not offered any trustworthy evidence as to how his expectations are to be realised. Admitting that the soil at Castle Coch possesses every element calculated to produce excellent Grapes, this, I imagine, will be of little benefit under a low temperature, such as that of Glamorganshire. That the Vine plants will grow freely in such a situation, there can be no reasonable doubt; but the production of Grapes capable of making wine fit to drink is altogether another question. To make good wine, the Grapes must be thoroughly ripe, or, in other words, contain a large proportion of sugar, otherwise the juice, after fermentation, will be weak and watery. Many years ago, a Mr. Hoare made an attempt to grow Grapes on what he called the pillar system, fully exposed to all weathers, and even went so far as to publish a book, in which he described his system, and maintained that failure was impossible. Nevertheless, the scheme proved to be a visionary one. I confess my astonishment to find Mr. Pettigrew making a comparison between Vines growing under full exposure and those trained on the walls of Cardiff Castle, and then asking us to believe that the two cases are parallel. I have had some experience of Vine culture on open walls under the most favourable conditions, and that, too, in a climate more favourable than in any part of Glamorganshire; but the results were always unsatisfactory, and, while I have no desire to raise objections that may be considered premature, I must record my conviction that the undertaking is a mistake, while, at the same time, I heartily trust my anticipations will prove incorrect.—R. S. F.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Amateur Strawberry.—What do cultivators in general think of this Strawberry? With me it appears to be a very tender foliaged kind. The quality of the fruit is good and the growth vigorous, but the foliage is remarkably delicate.—W. B., *Maidstone*.

Marie Louise Pear.—This Pear does not do well here, even on a south wall, the greater part of the fruit being scabby and cracked; while even perfect fruit of it is very inferior in flavour.—W. W., *Eaglehurst, Fawley, Hants*.

Red Spider Induced Through Overcropping.—We overcropped a young Black Hamburgh this season, and the result is the only red spider we have had on the Vines has been on the foliage of that variety.—R. P. B.

Late Melons.—Amongst several kinds of Melons now in use here, we find Eastnor Castle Green-flesh and Scarlet Gem to be the best. The former is a most excellent flavoured free-bearing variety; the latter is a well-known old variety, that still holds its ground against many competitors.—H. J. C., *Grimston*.

Span-roofed v. Lean-to Houses for Grapes.—Whilst this subject is being discussed, permit me to ask if span-roofed Vineries running east and west will answer as well as those running north and south. My ground slopes much to the south, and, in consequence, it is difficult to build span-roofed houses to run north and south.—Vitis.

Pear Lebrun.—A truly fine fruit, that deserves a wall, but, nevertheless, does well upon the Quince, and bears immensely every year. The fruit this year is damaged by hail, &c., and is smaller than usual, owing to the trees having lost nearly all their leaves. I consider it a first-rate Pear.—J. Scott, *Merriott Nurseries*.

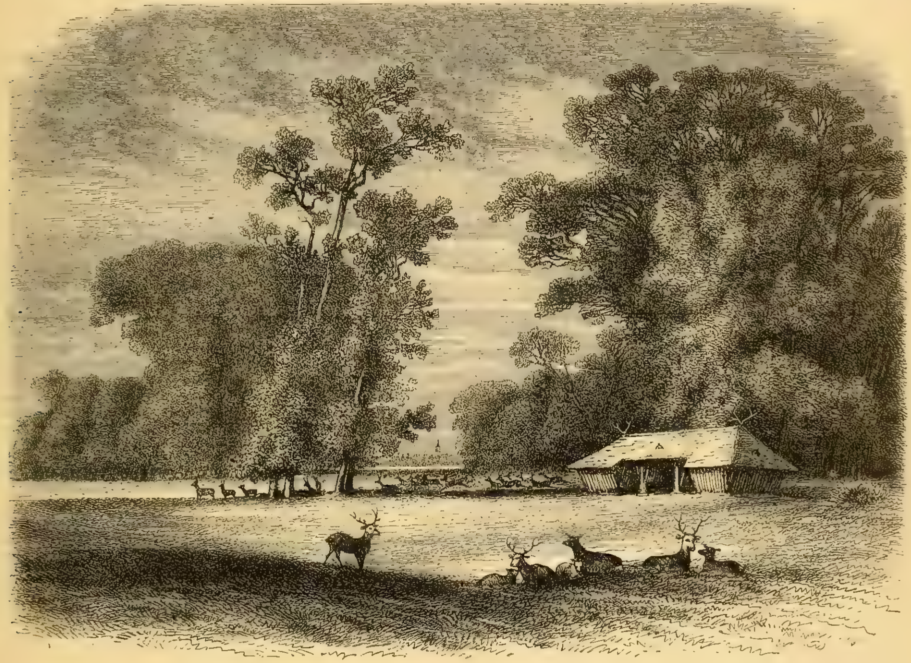
Marechal Dillon Pear.—This large, delicious, and handsome Pear was raised by Van Mons in 1818, and is one of his best productions. It is much smaller this year than usual, and it is speckled from the bad season we have had in this neighbourhood, hail and rain having much injured our fruit crops. It is of large size, and of first-rate quality.—J. Scott, *Merriott Nurseries, Crewkerne*.

Madresfield Court Grape.—A plant of this variety at one end of our late Vinery, where the roots receive bottom-heat from the ascending pipes, always finishes well and rarely cracks, though the berries are small; while another Vine of the same kind and of the same age, at the other end of the Vinery, where it gets no bottom-heat, produces berries as large again, but they never colour well, nor acquire such a good flavour.—J. S.

RUSTIC BUILDINGS IN PARK SCENERY.

The sylvan appearance of our parks is often impaired by the injudicious character of the sheds and other out-buildings which are sometimes necessary for the occasional shelter of cattle or deer, or for keeper's huts. In many cases, it is true, such unavoidable excrescences on the natural and reposeful aspect of park scenery are, with instinctive good taste and modesty on the part of the constructors, kept entirely out of sight; but, in other instances, a clever designer of mongrel Swiss chalets is so proud of his productions that he thrusts them forward into prominent situations where their glaring smartness, designed to fulfil, in a "decorative" manner, the purpose above alluded to, utterly destroys the beauty of the scene which they were ambitiously intended to embellish. Where the taste and talent of a true artist cannot be commanded for designing such buildings, they ought always to be kept entirely out of sight. But where, on the other hand, real talent in devising rustic structures, in strict accordance with the characteristics of the site for which they are intended, can be procured, a mere shed, so to speak, may, in some instances, be made to form a positive improvement to the scene in which it is placed. The stretch of park land in which a picturesque shelter for deer is here introduced, possesses no remarkable features of its own. There are no grandly detached trees of magnificent dimensions, or other objects calculated to attract special interest from different points of view; and, therefore, the introduction of a marked feature of suitable character improves what an artist might call the general composition. The structure in question is judiciously placed near to, and partially in the shade of, a tolerably dense mass of wood, which prevents it from assuming an undue prominence; and another and very special instance of the skill of the designer consists in the nearly total avoidance of vertical lines, which causes it to blend so pleasingly with the landscape. The sides of this rustic structure slope outwards at nearly right angles to the slope of the roof, which is suitably and simply ornamented with antlers at the extremities of the ridge line. Erections of this description should invariably be of an unpretending character, and should harmonise, as much as possible, with the general character of the surrounding landscape. Such apparently small matters are worthy of the keenest attention in the laying-out or improvement of park scenery, the character of which it is so easy to destroy by the introduction of so-called rustic buildings of an unsuitable kind.

H. N. H.



Park Scenery.

Picea Alcockiana.—In your review of Mr. Gordon's "Pinetum," in The Garden of March the 20th, you speak of this Japanese Conifer, which one scarcely ever sees mentioned, although certainly as worthy of general cultivation and notice as any of the Silver Firs, that have yet been introduced from Japan's great rivals in furnishing us with hardy Conifers, California and British Columbia. Its dense habit of growth combined with its strong tendency to make rival leaders at the extremity of its branches, causes its growth for the first few years to be exceedingly slow; but if that tendency is carefully watched and checked, its later growth in suitable soil (and like most Piceas it seems to thrive best in peat) is freer than that of most of the genus. Its great attraction and what distinguishes it from all others of its tribe, is the striking and beautiful contrast between the two sides of the leaves; for, whilst the under side is perhaps more silvery than in any other Picea, the upper has a rich golden tinge, varying in intensity in different specimens, but in all, most lovely. In some catalogues, even in that of the introducers, it is classed under Abies, but that must I think be a mistake. I have seen none larger than 4 feet, but even at that size it is a model of beauty, and I am convinced that no Conifer yet introduced will surpass it.—G. W. B.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

It very often happens that, in amateurs' gardens of recent formation, the work proves to be of the worst possible description, and the possibility of obtaining satisfactory results is out of the question, however attentively the cultural details in the treatment of the plants grown may be carried out. This is particularly noticeable in suburban gardens, where the planning and execution of the work are alike carried out without a due consideration of the chances that the trees and shrubs that are planted have of growing properly, or that the seeds that are afterwards sown have of coming to maturity. It is no uncommon thing to see the top spit of the ground removed altogether; and such as may happen to remain on the site of the intended buildings, instead of being laid where it will afterwards be available for adding to and deepening the garden ground, is often wheeled into the nearest hollow, and the clay, or inferior sub-soil from the excavations, put on the top, so as to effectually bury it. Every conceivable kind of rubbish, unsuited for the growth of plants, is just concealed from sight below the surface, which is then coated over with a few inches of fair-looking soil, and made trim in appearance. A certain number of deciduous trees, evergreen shrubs, perennial flowering plants, and a few fruit trees, are put in, the whole of which have been, in many cases, weeded out from some nursery stock, having previously stood for years until they are utterly valueless; or, if perchance, a proportion happens to be in a condition to grow, the chances are that the varieties are unsuited to both soil and situation. That this is no overdrawn picture hundreds of amateurs, who occupy suburban gardens, can testify to their cost. I am personally acquainted with numbers of such cases, where, after large expenditure, the results have been very meagre. To bring such gardens as these into anything like good condition often entails much more labour than forming new ones. In taking steps for the improvement of such gardens, the first consideration is the state of the drainage; if it is deficient, anything that may be done without first putting this important matter to rights will be of little avail. Damp, over-moist soil may suit the requirements of some crops during the middle of summer in dry seasons, but few subjects can make satisfactory progress through the spring, and, in the autumn, crops grown in such ground are the first to show the effects of weather. To the uninitiated the mention of drainage conveys an idea of a work entailing serious expense, but, where it is merely intended to carry off the surface water of even a large garden it is not a costly undertaking. Much has been written about the depth that drains ought to be cut; in this, as with most other operations connected with land, which varies so much in character, even in any given locality a fixed rule is impossible. The fact of ground requiring draining at all is evidence of a retentive sub-soil at no great depth from the surface—18 inches, perhaps, in very clayey soils, or from 2 to 3 feet in such as are aërated to a greater depth. Whatever may be the depth at which the under soil which holds the water lies, drains sunk into it a foot deep will be sufficient, and 2-inch pipes are large enough for the purposes under consideration; but for garden ground, especially where the object is to remove the super-abundant moisture as quickly as possible, merely inserting the pipes, and then filling in with soil is not enough. There should be placed, immediately on the pipes, from 8 to 12 inches of rough open material, such as brick rubbish, clinkers, cinders, burnt ballast, stone rubble, or whatever material of the same nature is most easy to obtain in each particular locality. In any neighbourhood where bricks are made there is generally a quantity of refuse that can be had for little more than the cost of removal, than which, for the purpose in question, nothing can be better. Drains made in this way are much more effective in their working than when nothing but the pipes are used, being quicker in drawing the water from the soil after heavy rainfalls; they are also less liable to get choked up, and generally last longer. The distance that should separate the drains depends upon the nature of the soil and the uses to which the land is to be put. For ordinary garden crops, where the soil is wet and heavy, it is false economy to half do the work; drains 12 feet apart will be much more effective than if they were put in at greater distances. For gardens, such as those just described, that have been badly made, where the soil is deficient, the best remedy is to bring in more, if such can be got good, and at a reasonable price, and to incorporate it with an equal depth of that already existing; but where this cannot be done I should recommend that the crop of vegetables for a couple of years be planted at double the usual distance apart, so as to allow of the intervening spaces being two or three times dug over through the summer, and, if oftener, all the better. Exposure to the sun and air has great influence in bringing indifferent soils into good condition. Such operations will, of course, necessitate everything being grown in rows, a system that should always be followed where high-class cultivation is attempted. In the second season the crops should occupy the space that has been lying fallow the first summer. In the autumn, gritty road-scrapings, finely-sifted ashes, and pit or river sand should be worked into the ground; all available vegetable refuse and rotten leaves ought also to be dug in, but do not be tempted to burn refuse and dig in the ashes. Never burn anything in the shape of vegetable matter, unless it be of a woody character that will not rot; weeds, such as the roots of Docks or Bindweed that are very tenacious of life may, however, be so charred as to destroy vitality. In burning too much is lost. In gardens, on the other hand, of a light sandy nature, or too rich in humus through long-continued applications of vegetable matter, the best remedy is a good dressing of, say, 6 inches of marl. Where this can be had it should be laid on the surface of ground that has been dug over or ridged up for the winter, or it can be put between the rows of Cabbages, Broccoli, Spinach, or other crops, and allowed to remain there until the land has to be prepared for spring cropping. Thus treated it will become thoroughly pulverised, after which it can be dug in and evenly incorporated with the soil; in this way I have used as much as 300 loads to the acre upon light kitchen garden ground, laying it on at different times over a series of years, with the best possible results, both to the vegetable crops and the fruit trees. Where marl cannot be had ordinary clay may be used in a similar manner, and will be found to greatly improve soils that are in such a condition as those above described. The present is the best time for carrying out all such work, as it can be completed without interference with the ordinary routine of operations.

Flower Garden.—It is time now to make some arrangements for winter and spring. The first consideration will be to determine what bulbs are to be planted and where to plant them. A good display can be made in spring without doing more than filling a few of the beds with spring-flowering bulbs; these may even be confined to the smallest of the beds, provided they are spread at intervals over the whole garden, which ought to be so planted that it will furnish a succession. Beds not planted with bulbs should at once receive their winter occupants, which will consist of small shrubs or spring-flowering herbaceous plants, or a mixture of both, according to taste. Nothing is more useful than the early-blooming Violas, Daisies, Primroses, Polyanthuses, Forget-me-nots, Arabis, and Aubrietias; with these a beautiful display may be made. Spring bedding should be confined to such plants as those which can be moved without seriously injuring them to make way for the summer occupants of the beds; at the same time, I would by no means limit the use of these beautiful spring-blooming plants to flower gardens, properly so-called, where they must necessarily be moved twice a year, for such treatment, even with the greatest care, both in preparation and in moving, prevents their flowering so well as they would do if well cared for in the herbaceous border, which is their proper quarters. If, as was advised at the time of their removal to the reserve ground in spring, they were divided so as to make plants of a suitable size for re-planting, they will now only require lifting, with all their roots, as far as possible, intact, and with as much soil as will adhere to them, remembering that the less they are disturbed, and the more expeditiously the work is done, so that the roots are not exposed—not even for an hour, if possible—the less check they will receive, and the more profusely they will flower. Before filling the beds, it is well to carry out any alteration that is intended to be made, either in their form or position, as it is much better to do this now than in the spring, when work of all kinds demands attention, and when it necessitates the removal of the plants earlier than would otherwise be required.

The Flower Garden and Pleasure Grounds.

In clearing the flower-beds and borders of the remains of their summer occupants, considerable care is necessary to ensure the safety of large specimens of such plants as standard and pyramidal Pelargoniums, Fuchsias, Abutilons, and other plants which are occasionally used for outdoor decoration during the warmer months of the year. Many of these, if carefully taken up and re-potted, will be found to be of great value for furnishing large conservatories, &c., while others may be placed for a time in orchard-houses, or other structures which will afford them the necessary protection, and they may, during the winter, be found useful for the decoration of halls, corridors, staircases, &c. Where such plants have been plunged out of doors in their pots, the operation of lifting them is by no means a difficult one; but the retention of such plants in pots is not absolutely necessary; on the contrary, most of them are found to succeed best turned out, and they can generally be taken up and re-potted without greatly checking their progress. There are, at this place, standard Pelargoniums, with clean stems, 3 feet in length, some fifteen years old, which have been annually turned out in May, and re-potted in October. These generally form heads some 5 or more feet in diameter, clothed throughout the season with innumerable trusses of bloom. If the soil of the flower-beds and borders is properly enriched with fertilising materials previous to planting out the summer bedding plants, little, if anything, will be required now in the way of manuring, so that the planting of the various ornamental shrubs, spring-flowering plants, and bulbs, may at once be proceeded with; and, to the kind of plants mentioned as suitable for this purpose, may be added the beautiful varieties of variegated Kale, which may be used with excellent effect. They should be sown in beds early in June and transplanted, with the view of keeping them dwarf and compact; these may now be moved into the flower beds without difficulty, and with little, if any, check; and, for richness and delicacy of leaf-colouring, such plants are unsurpassed by any others, whether tender or hardy. Should it be considered desirable to have any portion of the beds planted in the carpet style during winter and spring, this can be easily accomplished by using some of the many hardy dwarf-foliaged plants, such as the Golden Feather Pyrethrum, Stellaria graminea aurea, Cerastium tomentosum, Santolina incana, Cineraria maritima compacta, &c.; and, although most of these plants are of a white or silvery colour, yet darker and brighter shades can be obtained by using such dwarf-flowering species as the various Aubrietias, Forget-me-nots, &c., and, for marginal and divisional lines, some of the more hardy succulents, such as Sempervivum californicum; Echeveria secunda glauca, so much used for this purpose in summer, although nearly hardy, is nevertheless unable to stand some winters, and, on that account, should not be employed for winter edgings. As soon as the planting of the spring bedding plants has been fairly completed, let the mowing-machine be once more passed over the Grass, selecting a dry and suitable day for the purpose. All Grass edgings should also be neatly trimmed for, possibly, the last time this season. Gravel walks should likewise be swept and rolled, and good order everywhere maintained. Cuttings for stocks of the Manetti Rose may now be inserted, but care should be exercised in preparing them; every eye should be extracted from that portion of the cutting which is to be inserted in the soil; as, if this is not carefully attended to, much trouble and annoyance will be the result, arising from the constant production of underground suckers or shoots from the stock. Briar stocks for budding next June should also be planted now in rich well-manured soil, care being taken to select the best varieties of the Briar or Dog Rose for this purpose, and to carefully remove everything likely to be productive of suckers. Attend to the stock of bedding plants of all kinds, giving them plenty of air whenever the weather is favourable, and watering them when necessary, but this will not be often needed for some time to come.—P. Grieve, *Culford, Bury St. Edmunds.*

Indoor Fruit Department.

Vines.—To have Grapes ripe on planted-out Vines in April the Vines must be started into growth now. Pruning and other cleaning will have been done some time ago, and operations may now be begun by placing a bed of fresh leaves and stable litter mixed on the inside border to the depth of 2 feet. This soon heats and keeps the temperature high enough without fire-heat for some weeks. The ventilators should now be kept shut, and sufficient air given at the top on fine days to prevent the temperature exceeding 70° or, at the most, 75°. The night temperature must not be kept higher than 60° for the first fortnight, and on cold nights it may be allowed to fall to 55°. When the day temperature has been high, dew the canes all over with a hand syringe early in the afternoon; in dull weather the moisture which rises from the leaves is sufficient until fire-heat is applied. The upper half of each rod should be allowed to hang down, so as to be near the level of the lower half; this will induce the buds to start into growth more evenly. In beginning to force at this time it is of great importance to have the outside border heated when the roots are not wholly confined to the house. Hot-water pipes at the bottom of the border are most efficient in securing this heat; but these are not always available. The next best way of heating the soil is to place a quantity of the heating material, similar to that used inside, on the surface of the soil. It should extend, at the least, 4 feet from the front sashes, and should be firmly built 3 feet high. When laid on loosely it does not ferment well, nor does it retain its heat. The whole should be covered over with wood or glass sashes, to prevent the wet from lowering the temperature. Vines which were started at the beginning of December of last year will do well to start a month earlier this time. Those which were started at a later period last season will not make much progress for a considerable time, if started now; if started one month earlier each season until November is reached, it is as much as can be done with any good result.

Pines.—When all these have been arranged in their winter quarters, clean water should be given to any which may be dry at the root, a little guano being always mixed with that used for plants in fruit. Arrange the leaves into their natural position, and give the whole a good syringing over head to cleanse and refresh the foliage. Evaporating pans must never be allowed to become empty. Moss stuffed firmly in between the flow and return pipes, and kept constantly wet, is the best means of supplying the atmosphere with moisture in all kinds of plant houses.—J. Muir.

Hardy Fruit.

At this season it is usual, though the practice is not universally adopted, to loosen or unnail Peach and Nectarine trees from the walls, the theory, which is no doubt a correct one, being that such a proceeding assists in keeping the buds longer in a dormant state, thus retarding growth in the spring, as, of course, the later the trees are in flower the greater is the probability of their having favourable weather. Our spring season is so treacherous, and the fruit crops depend so much on the character of the weather when the trees are in flower, that any method that will successfully retard the blooming period is worth adopting, regardless of labour. When unnailing, see that the main branches are securely fastened to prevent rocking or other injury from the wind. Lift and re-plant any trees that have grown too strongly; this will not in any way affect the safety of next year's crop if the operation be accomplished at this early period. After planting, mulch with litter or half-rotted manure; this is a good old practice, and most effectual in excluding both frost and drought, though, apparently, we are not likely to be troubled with the latter for some time to come. Strawberry plantations or beds, having been cleared of runners and pointed over, should now be thickly manured. Choose the first frosty morning for the operation, as, when the ground is dry, it is better, both for wheeling and spreading the mulching. We have practised this mode of manuring Strawberries for years, and can recommend it as the best, both on the ground of economy and profit, the manurial properties of the mulching being washed down by the rains of winter amongst the roots of the plants, whilst at the same time the litter is cleaned, and remains to counteract the droughts of summer, preventing the necessity of laying straw or other material at ripening time. Hand-weeding once or twice in early spring is all that is usually required to keep the beds in perfect order. Manure may also be wheeled on frosty mornings on to Gooseberry, Currant, or other fruit-tree quarters, to be dug in as opportunity and weather permit. The foliage being off both Gooseberries and Currants, they may now be pruned, and the plantations made good, by removing old or worthless trees and planting new ones. Cuttings of both kinds may also now be inserted, selection being made of firm, well-ripened and straight stems, which should be planted firmly in rows a foot apart and 6 inches apart in the row. The eyes or buds should be picked out of that part of the stem which is inserted in the ground, as they sometimes produce suckers, and it is always desirable to have single stems only. Raspberries may now also have their old canes cut away and the new ones thinned out and shortened to the desired number and height. Stakes, wires, trellis, or whatever they are attached to, should be put in thorough repair, and the new canes trained to them, after which, fork the ground lightly over, and manure as advised for Strawberries.—W. Wildsmith, *Heckfield.*

Remarkable Crop of Potatoes.—An extraordinary instance of the remarkably productive qualities of some of the American varieties of Potatoes has recently occurred in the gardens at Capesthorne, the seat of Mr. W. Bromley-Davenport, M.P. In the spring of the present year the gardener (Mr. F. Ford) purchased two new varieties of American Potatoes, one named Snowflake, the other Eureka, from Messrs. Hooper & Co., of Covent Garden, London. One pound of each was weighed, and planted on the 13th of April, in the presence of Mr. Holmes, schoolmaster, Siddington, and Mr. Pirie, gardener to Lord Stanley of Alderley. Snowflake being the earlier Potato of the two, was lifted on the 13th of August, in the presence of the above-mentioned Messrs. Pirie and Holmes, and a number of tenants on Mr. Davenport's estate, who also assisted at the weighing of the Potatoes, when, according to the "Leamington Gazette," it was found that from 1 lb. of Snowflake was produced the surprising weight of 638 lbs. This was considered by all present a most wonderful crop, and unless a sufficient number of trustworthy witnesses had been present, no doubt it would scarcely have been believed; but what followed was still more wonderful, for, on lifting Eureka in the following week, in the presence of nearly all the above-mentioned gentlemen, and also of Mr. Knight, gardener to Captain Dixon, of Astle, it was ascertained that 1 lb. of Eureka had produced 1,082½ lbs. This is the greatest weight recorded as having been grown from 1 lb. of seed, and exceeds by 64½ lbs. the greatest weight grown by the Americans in their great Potato trial of last year, when H. C. Pearson, of Pitcairn, N. Y., headed the list with 1,018 lbs.

TREES AND SHRUBS.

GROUPING PLANTS IN ORNAMENTAL SHRUBBERIES.

I was told the other day, on good authority, that the exhalations of Thyme, Rosemary, Lavender, and similar plants usually classed as herbs, are highly charged with ozone. Should this be a fact, these plants may be worth the attention of town and suburban planters; but, in addition to this, a new and special feature may be imparted to shrubberies, or woodland scenes, or glades, where small openings abound, by planting masses of considerable quantities of such plants as the following:—Rosemary, from its erect habit of growth, and the play of light caused by the difference in colour of the upper and under sides of its narrow foliage, has a peculiar and striking effect in large groups. The soft grey of Lavender and Southernwood, contrasted with dark-leaved plants of low growth, such as the common Savin, for instance, and the bright green of some of the St. John's-worts, has a very pleasing effect. The Golden Thyme may be effectively used near the margins of walks or on sandy banks and knolls; in fact, when once a beginning is made, there is no end to the combinations that can be formed, with comparatively inexpensive materials, that would be an improvement upon the mixed shrubberies now so constantly met with. Of course, in the same way, clumps of Holly, Laurel, &c., could be employed where shelter is required. Where it is desired to try the effect of planting masses of low-growing plants, either in the margins of shrubberies or by introducing them amidst the semi-wild scenery of the "wilderness," or to clothe banks in the rockery, the soil should, as far as possible, be trenched and renewed, in order to give the plants a chance, and seedling plants should be used in preference to those from cuttings on account of their possessing greater vigour. E. Hobday.

Ramsey Abbey.

THE GUM TREE IN ONE OF ITS NEW HOMES.

The genus Eucalyptus is a very large one, as it includes about 150 species of chiefly Australian trees, which are broad-leaved evergreens, some of which exceed in size even the "big trees" of California. Several of these were introduced into California a few years ago, and one of them, E. globulus, the Blue Gum, is so much more esteemed than the others, that when Eucalyptus is named, it is there understood that this is the species referred to. It is already widely disseminated in that state, and forms a striking feature in the landscape around San Francisco Bay. It grows with great rapidity, making a tree 10 to 15 feet high the third year from planting. It grows readily both from seed and from cuttings, and all the nurseries that we visited in suburban districts and in the country had large plantations of Eucalyptus. The leaves upon young trees have a peculiar bluish-green tint, which changes to a darker green as the trees grow older. It is planted in almost every conceivable position where trees are allowable. It is an admirable tree for the side walk, and for the lawn in suburban districts and in country villages, having a clean trunk and leaves, and forming a deep shade. It grows in compact masses and makes a good wind-break in three or four years. It makes wood rapidly, and is planted both for fuel and timber. It is remarkably tenacious of life, and when well started at the beginning of the rainy season, few plants fail even in exposed and unpromising localities. We saw all along the Piedmont district, east of Oakland, avenues planted with this tree, and hardly a gap in the long rows. The people begin to have faith that all that treeless region east of the bay, even to the top of the mountain range, may be clothed with forest. In visiting the site of the old Red-wood forest that overlooks the bay, we noticed a plantation of Eucalyptus upon the ranch of Mr. Low. It was well up the mountain, upon a steep acclivity, and in a spot as unpromising as any that could have been selected. Almost every plant was in flourishing condition. The tree seems to be a success everywhere. Its sudden popularity is owing, in some measure, probably, to its supposed influence in absorbing the malaria of fever-and-ague districts. Numerous accounts are published, showing an improvement in the health of people in malarious districts where the tree has been planted. Dr. N. P. Gibson, of Alameda, a very careful observer, attributes this not to any peculiar value in the tree, but simply to its more rapid growth and greater power of absorbing water. He says:—"In eight years the Eucalyptus will attain a diameter of 18 inches, and a height of 50 feet. Experiments which I have made determine these facts. A branch of this tree, which contains 105 square inches of leaf surface, will absorb 3·25 ounces of water in eighteen hours. The entire tree will furnish an area of 310,500 square inches of leaf surface, and the amount of water daily absorbed by the roots would equal 609 lbs., or 76 gallons. Given a stagnant swamp of 200 acres, each acre having 200 trees, and the amount of water daily absorbed by the roots would be 3,040,000 gallons, or 405,333 cubic feet. This would be equal to a constant stream of water, running at the rate of 3 miles per hour, of 2 feet wide and 6 inches deep." The rapid growth of the tree is not over-estimated. Under favourable circumstances a tree has been known to grow 20 feet in a year, and to attain the height of 75 feet in eight years. Whether it be true or false, the belief in the ameliorating influence of the tree upon the climate in malarious districts is general, and the planting goes on with enthusiasm. It is doing much to change the landscape and to redeem the Californian summer from its sere and desolate aspect. It is good to turn from the boundless seas of Wheat and Oat stubble to the long evergreen rows of the Eucalyptus. Planters in the eastern states can hope little from the Eucalyptus; we ("American Agriculturist") gave last March an account of the unfavourable results with the different species of Eucalyptus as far south as Georgia, and we shall be glad to know how it has fared in others.

Specimen Trees at Bearwood.—All kinds of trees and shrubs grow with wonderful luxuriance at Bearwood, especially Rhododendrons, which, when in bloom, owing to their size, are magnificent. But, among trees, there are some specimens which alone are well worth a long journey to see. Especially handsome are a couple of Araucarias; one, about 20 feet in height, standing in the midst of a group of other trees, being, without exception, the prettiest and most perfect specimen of the kind which I have seen. It is conical in shape, the branches feathering to the ground, and each one drooping in a way quite peculiar to itself. I doubt if, at any time of its existence, this tree will ever be more perfect and beautiful than now. The same may be said of a very fine specimen of Picea nobilis, a superb massive tree, perfect in shape, and rejoicing in the most luxuriant growth. Amongst a large number of fine Wellingtonias on the estate, there are a couple quite distinct; and of these one stands in the pleasure grounds, and is a very beautiful specimen. The ordinary form of the Wellingtonia has foliage of a brownish-glaucous hue, which in early spring often looks rusty and unhealthy. The Bearwood specimen, however, has foliage that is quite green, and, at all times, looks fresh and vigorous. Indeed, it is one of the greenest of all evergreen Pines. It is also exceedingly dense in habit; and, apart from its distinct character, is one of the handsomest of the whole species. All the best known kinds of the Pine family are well represented by fine specimens. Not the least interesting or remarkable in the collection are the American Oaks growing in the pleasure grounds—all of which are fine trees, the leafage of which just now is very rich in colour, and extremely varied in form.—A. D.

The Original Golden Yew.—The original plant of the Golden Yew is in the Royal Botanic Gardens, at Glasnevin, and a remarkably good specimen it is. It is known to have existed there from about the beginning of the present century, and it need hardly be added that vast numbers were propagated from it both in Dr. Moore's time and in that of his predecessors.—R.

A Beautiful Wall Tree.—Berberis fascicularis is the most graceful of evergreen wall trees—at least, in mild sea-shore districts. In the College Botanic Gardens, at Dublin, there is a specimen of it 12 feet high and 25 feet through, grown against, but not trimly trained to, a wall. The effect is as if some lovely tropical Fern covered the whole space, and in spring, every shoot bears numerous yellow blossoms. It is a fine plant for placing against walls or sometimes against houses.—V.

NOTES AND QUESTIONS ON TREES AND SHRUBS.

The Creeping Fig (Ficus repens).—This plant has lived for thirty-five years on one of the walls in the College Botanic Gardens at Dublin. It was cut down twice during that time, but sprang up again from the root.—V.

Slow Tree Growth.—At a recent meeting of the St. Louis Academy of Science, Dr. Engelmann exhibited a section of the trunk of Juniperus californica var., which was not quite 4 inches in diameter and yet showed an unmistakable age of 127 years, each ring being on an average about one-fifth of a line wide. The largest growth in ten years had been about 4 lines, the smallest during a similar period about 1½ line.

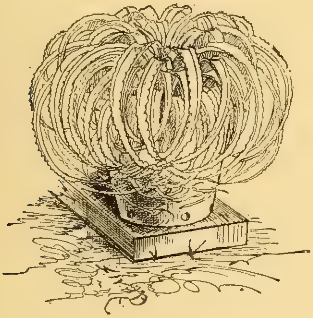
Deeringia celosioides variegata.—This is a very distinct variegated form of an Australian shrub, well worth a place on a warm sunny wall in gardens near London. A plant is now very beautiful outside on a stove wall at Kew, and looks exactly like a strong, young, dense-habited, variegated Fuchsia at first sight; the leaves are ovate, bright green, and about 1½ inches in length, each being boldly margined with creamy yellow, and the youngest foliage is tinged with red.—B.

THE INDOOR GARDEN.

A RARE BROMELIAD.

(DYCKIA (HECHTIA) ARGENTEA.)

This singular plant is one of the most beautiful of all Bromeliads, so far as habit is concerned, though, unfortunately, extremely rare in even our best collections of succulent plants. The plant figured represents a fine specimen, which is in the succulent-house at Kew, and which, with the exception of a plant grown by Mr. Wilson Saunders, is the only example we have heard of in this country. It is graceful in habit, and its value, from an ornamental point of view, is still further enhanced by its spinose foliage, of a bright silvery tint. The leaves are about 2 feet long, by 1 inch in width at the base; they taper gradually towards the apex, recurving and interlacing themselves round the pot-sides so tightly as to render the operation of re-potting extremely difficult, the leaves being not only rigid when fully developed, but also well armed with spines along their margins. The plant is difficult to propagate, except by offsets, which, judging from the specimen at Kew, are but seldom produced. If obtainable, it would be an interesting plant for either greenhouse or conservatory decoration, or it might be grown in windows if frost be excluded. The Kew specimen flowers at intervals, bearing spikes 2 or 3 feet high; but the blooms are small, of a dingy white colour, and of but little beauty, in the eyes of ordinary observers. Dyckias grow freely in a compost of friable loam and sand, on a well-drained bottom; but care must be taken that they are not over-potted. A sunny position near the glass suits them admirably, together with a moderately warm temperature and plenty of air during the summer months. They should be watered very carefully during the dullest part of the year, a saturated or stagnant compost during the winter season being the great bane of all plants of succulent habit. F. W. B.



Dyckia (Hechtia) argentea.

EPIPHYLLUMS ON THE PERESKIA STOCK.

If "F. W. B." (p. 323) were to see the Epiphyllums at Orwell Park he would no longer, I imagine, have any doubt as to the suitableness of the Pereskia as a stock on which they may be grown to perfection. I have had an opportunity of seeing these plants almost every season for the last nineteen years, and, when in bloom, they are a sight not readily to be forgotten. Although exceedingly fine at the present time, they are not what they were a few years back, when they occupied the greater part of a house to themselves, and stood and made their annual growth and bloom without any disturbance through removal. Since the addition of a grand conservatory or flower-room has been made to the place the plants have to be removed there when in bloom; and, with all the care that it is possible to exercise in removing such large plants backwards and forwards, it cannot be done without some damage, and the plants, on that account, are not so symmetrical as they were formerly. There are few plants so difficult to handle as grafted Epiphyllums, as they have a provoking way of slipping out of the stock just where they have been grafted, and not only do they do this, but they break away very easily at the joints after the tops get large and heavy. It is, therefore, not to be wondered at that plants of the size and age of those at Orwell Park should not have entirely escaped the damage to which such plants are liable; but, for all this, and the shortening back they have received to keep them to their present movable size, they are still grand plants, and, when in bloom, are models of floral beauty. The plants in question are regular pyramids, varying from 4 to 6 feet high, and from 3 to 4 feet through. The whole of these are on the Pereskia, and their free growth and bloom prove that the stock is no starveling to have developed such heads and kept them in health for so many years. The Pereskia has one great advantage over most other stocks used for grafting the different varieties of Epiphyllum, in that it can be run up to almost any height in a single season, and this is a great consideration when it is desired to have plants of these in the pyramid form, as the small pieces of Epiphyllum may be inserted at proper distances up the stem of the Pereskia to any desired height, and thus the foundation for a tall pyramid would at once be formed. The Pereskia appears a very persistent rooter, and, as it has an immense number of minute fibres, its feeding capacity as a stock must be something enormous, and as a stock for Epiphyllums, I should have thought it was unequalled. Be this as it may, the above instances of what it is capable of prove it to be a most valuable and durable stock on which to grow the most lovely of all the Cactus tribe. The Epiphyllums make very beautiful basket plants for suspending from the roofs of stoves, in which position they are even more effective than when grown in pots, as, from the drooping habit of the plant, the flowers do not show themselves so advantageously in any other position. Grafted on the Cereus, and allowed to depend from the rafter in the way described by your correspondent, it must, when in bloom, be an object of great beauty. J. Sheppard.

"F. T. P." states (see p. 355) that he dislikes the Cereus and Opuntia as stocks for Epiphyllums, on the ground that they only grow during summer, and that Pereskia grows "during winter in a warm greenhouse." This is new to me, inasmuch as my practice has been to allow my Pereskias to become dry and to lose their foliage in winter. Under this treatment I have found them to prosper best. Though Opuntias and Cereuses will rest during winter, they would, nevertheless, grow until after January if we could give them light and sun-heat enough to mature their wood. If winter is their natural season of rest so it would be that of Pereskias, as they also come from the same country. I have had a plant of Epiphyllum twelve years on a Cereus speciosissimus; and, although I only potted it once during that time, it flowers profusely, and is more hardy than those on Pereskias standing in the open air all the summer. As to watering, Which requires most attention, a plant that wants water twice a week or one that requires it only twice a month? Because a plant is in flower are we obliged to water it, let it be wet or dry? If a plant of Opuntia is in heat there is no danger of its rotting, unless it is over wet. It is asked, Why do Epiphyllums emit aërial roots? I answer, because they require nourishment. My plants on Cereus and Opuntia do not throw out such roots. My experience is that for large and durable plants of Epiphyllums Cereus speciosissimus and Opuntia maxima are the best stocks. J. Croucher.

Some four or five years ago, I had six varieties of Epiphyllums, all grafted on Pereskia aculeata as a stock, and they are now good pyramidal plants about 3 feet in height, and flower profusely every year in November and December. I have grafted some of the varieties on a strong-growing Opuntia, but they never seem to grow so well nor flower so strongly as on the Pereskia stock. There are very few winter-flowering plants to be compared with Epiphyllums, when well grown, whether in pots or in the form of hanging baskets.

Welbeck. William Tillery.

Stacking Soil.—This is a good time to get a good stock of soil laid in for next season's use. We usually stack about fifty loads of turf from an old pasture. It is first ploughed up about 4 inches in thickness, and then stacked in a ridge with the grassy side down. The soil here being a rich sandy loam this sort of turf, after being stacked about three months, is suitable for Pines, Melons, Strawberries, &c., without any addition whatever in the way of manure.—J. Groom, *Henham.*

THE KITCHEN GARDEN.

THE HERB GARDEN.

Sweet or pot herbs do not always receive that attention which they deserve; on the contrary, if they exist in gardens at all, it is only in out-of-the-way corners. This may be ascribed to the fact that in some establishments many of them are seldom or never asked for. In many gardens, however, it is found necessary to grow them, as it not unfrequently happens that certain kinds, which may not have been required for years, will suddenly become indispensable, and they are always expected to be forthcoming when wanted. I will, therefore, give the names of the principal varieties in use, with a few practical hints concerning their culture and the purposes for which they are generally grown. Before doing so, however, it may be premised that, in many instances, it might be worth while endeavouring to grow these plants in a somewhat more attractive and systematic manner than is generally done; and, to accomplish this, a garden or a herb department might readily be formed in any convenient situation, either inside the kitchen garden or elsewhere, which might, with little trouble, be rendered interesting as well as useful. This garden, or department, should be laid out in the form of a series of beds, or clumps of various forms and dimensions, in the style (but, of course, upon a small scale) which we generally see adopted in botanic gardens. These beds or clumps might be separated from each other by narrow gravel walks, which should be edged with the common dwarf Box, variegated Thyme, or any other suitable plant; and the numerous varieties of herbs should each occupy beds or clumps suited to their habit of growth and other circumstances. The perennial kinds should be occasionally divided and transplanted, while annual species, such as Sweet Basil and others, might be sown at once in the beds which they are intended to occupy; or, the seeds may be sown under glass, and the young plants afterwards transplanted into their respective beds; but, in the case of such tender species as Basil and Sweet Marjoram, this should not be done earlier than the end of May. In the Order Labiatæ are to be found a considerable number of our aromatic or sweet herbs. Let us, therefore, begin with these.

Spearmint (Mentha viridis).—This, which is sometimes called Lamb Mint, is a native of Britain, and, consequently perfectly hardy; it will flourish in almost any kind of soil, and in any situation, although a somewhat damp locality suits it best. It is easily propagated by means of cuttings or by division of the roots, and it should be transplanted every two or three years. It should be cut and dried for winter use as soon as it comes fairly into flower, and when this is done the beds should be cleaned and top-dressed, when young shoots will again be produced which will afford a supply of Mint during the greater part of the winter; when this is exhausted a few pots of it should be introduced into a forcing-house, where it will soon commence to grow, and, by these means, a constant supply can easily be maintained, and, in many establishments, this is required. The leaves are used in a dry state for soups, and the green leaves and shoots are employed in salads, and are boiled along with green Peas and young Potatoes. This Mint is considered to be a valuable anti-spasmodic, and is invariably used for making Mint sauce.

Peppermint (Mentha Piperita).—This is also indigenous to Britain, and its culture is, in all respects, similar to that of Spearmint. It is but little used, however, for culinary purposes, and is grown chiefly for distillation.

Pennyroyal (Mentha Pulegium).—This is likewise a native of Britain, and succeeds best when transplanted every spring. It is used for the purpose of flavouring various dishes, puddings, &c.

Sage (Salvia officinalis).—This is a native of the south of Europe, and, although generally considered to be quite hardy, it sometimes gets injured or killed by frosts in severe winters, and not unfrequently suffers from damp. It consequently succeeds best in a light soil, and in a warm and somewhat sheltered situation. It is easily propagated by means of cuttings, which should be inserted early in autumn in light sandy soil or in a mixture of sand and leaf soil, in pots or pans or under a hand-glass; when gradually hardened off, they should be planted in beds about the end of April or early in May. The tops of the shoots of old plants are sometimes cut off, and dried for winter use. Sage is much used for the purpose of flavouring various articles of cookery. Of this plant there are two varieties, viz., Red and Green Sage, so called from the colour of their leaves; both are, in all respects, alike useful.

Common Thyme (Thymus vulgaris).—This, indigenous to the south of Europe, is perfectly hardy. It succeeds best in a light rich soil, and may be increased by dividing the old plants in spring, from cuttings, and from seeds. If seeds are preferred, they may be sown in pots or pans about the end of March, and, when the plants are large enough to handle, they should be pricked out into pans or boxes, gradually hardened off, and, finally, planted in beds early in May. Thyme is used in various ways, but chiefly for stuffings. Lemon Thyme may be propagated and grown in the same way as the common kind, and this variety is sometimes cut and dried for winter use.

Sweet or Knotted Marjoram (Origanum Majorana).—This is an annual, and a native of Portugal. Its seeds may be sown in the open air about the third week in April, but it is better to sow them about the beginning of that month in pots or pans under glass in a gentle heat. When large enough to handle the plants should be pricked into boxes or seed-pans, from which they should be transferred to their places in the open air about the second or third week in May. They should be planted in a bed at a distance of 6 or 8 inches from each other, and should be well attended to with water during dry weather until they have become fairly established. As soon as the plants are in flower they should be cut down to nearly the surface of the soil, and the portion cut off should be tied up into bunches and dried in the shade. In nearly all establishments this herb is always in considerable demand for culinary purposes, being used for flavouring various dishes. Pot Marjoram is a perennial plant, and is more hardy than the knotted kind. It is easily increased by division of the roots. It is used for similar purposes, but is less frequently asked for than the sweet or knotted variety.

Summer Savory (Satureja hortensis).—This is a native of Italy, and an annual which may be sown at once in the bed in which it is to grow, about the middle of April, and the plants, when large enough, should be thinned out to a distance of 6 or 8 inches from each other; or, it may be sown under glass, and receive in all respects similar treatment to that recommended for Sweet Marjoram; and, when in flower, it should be cut and dried in the same way.

Winter Savory (Satureja montana).—This is also a native of the south of Europe, but it is a hardy perennial, and can be readily increased by means of division or cuttings. It is used for similar purposes as the former, generally in a green state for soups, salads, &c. Both varieties have long been held in considerable estimation for culinary purposes.

Sweet Basil (Ocimum basilicum).—This is an Indian annual, and consquently tender. Its seeds should be sown about the middle of April, in a genial temperature, and when the seedlings are large enough to handle, they may be potted off singly, or they may be pricked into boxes or seed pans, or into a frame on a slight bottom-heat, from which they should be transferred to their positions in the open air, about the beginning of June, for, owing to the plants being exceedingly tender, this can seldom be done with safety at an earlier period. Sweet Basil succeeds best in a light rich soil, in which the plants should be inserted, at a distance of 6 or 8 inches apart; and they should be well watered until they become established. As soon as they come into bloom they should be cut down to within a few inches of the ground, and the portion cut off should be tied up in small bunches and dried in the shade for winter use. As, however, green Basil is frequently required, the plants which have been cut down should have the soil surrounding them slightly stirred up, and the bed should receive a surface-dressing of fresh soil, when the plants will quickly form themselves into healthy little bushes, which will furnish a supply of green leaves until about the beginning of October. A portion of them should then be lifted and potted, or planted in boxes, and should be placed in a somewhat genial temperature, where they will continue to furnish a supply of green leaves when required throughout the winter.

Balm (Melissa officinalis).—This is a native of the south of Europe, and is a hardy perennial, which will succeed in any ordinary garden soil. It is easily increased by division of the roots in spring. It should be cut down just as it is coming into flower and dried in the shade. Balm, as is well known, is a strongly scented plant, little, if at all, used for culinary purposes, but it is used for the purpose of making a kind of tea, and a wine is also sometimes made from its green leaves and shoots.

Hyssop (Hyssopus officinalis).—This also came originally from the south of Europe. It is a dwarf aromatic evergreen shrub, which may be increased by means of division in spring, by cuttings, and from seeds. It is not particular as to soil. It is but little used for culinary purposes; but it is considered valuable as a medicinal plant, being regarded as a specific in some kinds of chest affections.

Lavender (Lavandula vera).—This is also indigenous to southern Europe, and is a dwarf-growing aromatic evergreen shrub, of easy culture, and one which will thrive in any ordinary garden soil, but which succeeds best in one of a somewhat light, warm description. It may be propagated by slips, which may be detached, with a portion of root adhering to them, from the base of old plants, and these may be planted at once where they are intended to grow; or a better plan is to insert cuttings of the young wood in pots or pans during the autumn, placing them in a close frame or pit, where they will soon strike root, and may be planted out, or allowed to remain in the cutting or store pot until spring, when they may be shaken out and planted in beds or lines, as may be desired. Lavender is possessed of medicinal properties; but it is cultivated chiefly for the sake of its sweet-scented flowers, and, in some localities, they are extensively used for distillation. The spikes should be cut and dried as soon as the blooms have expanded.

Rosemary (Rosmarinus officinalis).—This is a hardy aromatic evergreen shrub, of a somewhat ornamental appearance, a native of southern Europe. Like Lavender, it may be propagated by means of slips, layers, or cuttings. It will succeed in any kind of soil, although that of a somewhat light character appears to suit it best. It is a medicinal plant, but not used for culinary purposes.

Betony (Betonica officinalis).—This is a hardy perennial, indigenous to Britain, and is cultivated in some gardens as a medicinal plant. It is easily increased by division of the roots. It is seldom, if ever, used for culinary purposes.

Horehound (Marrubium vulgare).—This is a native of Britain, and will thrive in any description of soil. It is readily increased by division. It is not used for culinary purposes, but it is held to be of considerable value as a medicinal plant; and, in the form of Horehound tea (an infusion of the leaves and shoots in either a green or dried state), it frequently gives relief in cases of fever or stubborn coughs and sore throats. It should be cut when in flower, and dried in the shade for winter use.

The following six plants, which belong to the Natural Order Compositæ, are cultivated in most gardens in this country as pot-herbs, viz.:

Chamomile (Anthemis nobilis).—This is a native of Britain, and is perfectly hardy. It succeeds best in a somewhat dry light soil, and is easily increased by division. It should be transplanted annually, or, at least, once every two years. Small portions should be firmly inserted in the soil, some 6 inches apart, and should be watered when dry. After they have become established they will cover the entire surface of the bed in which they are placed. The flowers only are used, and of these there are two kinds, double and single, both of which are alike valuable. They should be picked off as soon as they have expanded, should be dried in the shade, and should afterwards be placed in paper bags, and kept in drawers or other dry places. Chamomile, being possessed of considerable febrifugal and tonic properties, is sometimes infused and taken in the form of a tea; and the flowers, after having been immersed in hot water, are frequently applied externally in cases of neuralgia and toothache.

Marigold (Calendula officinalis).—This is indigenous to the south of Europe, and is an annual, the seed of which may be sown in the open air about the end of April; or it may be sown under glass about that time, and afterwards planted out at distances of 10 or 12 inches apart. The flowers should be picked and dried in the same way as has been recommended for those of Chamomile. They are not much in request, but are occasionally used for soups, and for other culinary purposes.

Southernwood (Artemisia Abrotanum).—This is a well-known hardy evergreen shrub from the south of Europe, and one which will thrive in any kind of soil. It is easily increased by means of cuttings. It is peculiarly sweet-scented, and is a popular plant in cottage gardens, where it is generally to be found.

Wormwood (Artemisia Absinthium).—This is a British perennial, which will grow in any kind of soil, or in any situation. It is easily increased by means of seed, cuttings, or by division; and is only cultivated on account of its supposed medicinal properties. It has a strong and peculiarly disagreeable smell, the leaves are exceedingly bitter, and an infusion of them is said to assuage pain, and to reduce swellings resulting from bruises.

Tarragon (Artemisia Dracunculus).—This is a native of Siberia, and a perennial plant of considerable value as an aromatic herb, being much in request in almost every establishment. It may be increased by cuttings, or by division of the roots in spring, when the plants are about to start into growth. It succeeds best in a light rich soil, where it may be allowed to remain for several years undisturbed. But where the soil is at all heavy, or inclined to be wet, it is advisable to transplant it frequently, as large or old plants not unfrequently perish during severe winters. It is always used in a green state, and, on this account, it is advisable to retain a portion of the stock in 6 or 8-inch pots, some of which may, from time to time, be introduced into a forcing-house of any kind, in order to keep up the necessary supply. It is extensively used for various culinary purposes, such as flavouring sundry dishes, in salads, and as a cheese herb, &c., and it also communicates a refreshing and much-appreciated flavour to vinegar.

Tansy (Tanacetum vulgare) is a hardy perennial plant, indigenous to Britain, and may be increased by division or by seeds. It is sometimes, although not frequently, used for culinary purposes, such as the flavouring of puddings, &c., but it is chiefly valued as a medicinal plant, and is taken in the form of tea. It is tonic, anti-spasmodic, and anthelmentic.

Fennel (Fœniculum vulgare).—This is a herbaceous perennial plant, a native of Britain, and, together with the following four plants, belong to the extensive Natural Order Umbelliferæ, a family of plants which vary much as to their properties, some of them being remarkably aromatic and stimulating, while others are narcotic to a dangerous extent. The plant in question grows wild in this country, and will flourish in any ordinary soil. It may be increased by division of the roots, or by seed, which should be sown in spring, and the plants, when sufficiently advanced, should be thinned out, so as to leave them 12 or 18 inches apart. The leaves only are used, and, in order that these may be produced in abundance, the plant should not be allowed to bloom, so that it will be necessary to cut down the flower-stems frequently during the growing season. The leaves are used for garnishing, and in the preparation of various fish sauces, such as that for mackerel, &c.

Chervil (Chærophyllum sativum).—An annual plant, a native of Britain, and will flourish in any description of soil. It has a tendency to run to seed, which should be prevented by frequently cutting the plants down during the growing season, to ensure the production of healthy leaves, as only these are used. It is generally found necessary to make repeated sowings during the season, and as soon as the plants become at all exhausted they should be thrown away, so as to be succeeded by younger plants. It is used for various culinary purposes, for salads, and for garnishing various dishes, &c.

Angelica (Angelica archangelica) is a biennial plant, and a native of England. It is easily increased by seeds, which may be sown in the open air about the end of March. It is used for various culinary purposes, confectionary, preserves, liqueurs, &c., and was formerly supposed to be possessed of extraordinary medicinal virtues; hence the name.

Caraway (Carum Carui.)—This is a biennial plant, and is a native of Britain. It is propagated by seed, which should be sown in beds or lines in the open air, during the month of March, and the plants should be thinned out to some 6 or 8 inches apart when large enough to handle. It succeeds best in a light rich soil, and, as only the seed is used, the top part of the plants should be cut off as soon as this is ripe, and may be hung up in bunches to become thoroughly dry; and, when this is the case, it should be rubbed off and cleaned. The seed is possessed of a very pleasing aromatic flavour, and is largely used in various kinds of confectionary, and for giving flavour to liqueurs, &c.

Parsley (Apium petroselinum).—This well-known useful herb is a native of Sardinia, a biennial, and should be sown during the early part of March in beds or in lines, and the seeds, which are somewhat slow to vegetate, should not be placed at a depth exceeding 1½ or 2 inches. The soil should be kept free from weeds, which should be extracted by the hand, so as to avoid disturbance to the seeds when about to germinate. As soon as the plants are large enough, they should be thinned out, so as to stand 5 or 6 inches apart. It requires a somewhat rich or well-manured soil. The leaves of the best sorts are beautifully curled and very ornamental, and it is considered of much importance to obtain a good strain of this useful herb, which is so extensively used for garnishing various dishes, and for many other purposes too numerous to mention.

Borage (Borago officinalis).—This belongs to the Natural Order Boragineæ, is also a native of Britain, and is an annual plant, which will succeed in any ordinary garden soil. The seed may be sown in spring or at intervals during the summer, and the plants, when strong enough, should be thinned out, leaving a distance of a foot, more or less, between them. It is sometimes used as a pot-herb, and also for the purpose of garnishing, but is chiefly required for claret cups and other cooling drinks during the summer months.

Burnet (Poterium Sanguisorba).—The Natural Order Rosaceæ embraces this plant, which is a hardy herbaceous perennial, indigenous to Britain. It will grow in any ordinary light soil, and may be increased by dividing the roots in spring, or may be raised from seed, which should be sown at the same season of the year, and the young plants should be thinned out to a distance of 6 or more inches from each other. The flower-spikes, as they appear, should be removed; this will give increased luxuriance to the leaves, which alone are used, and are occasionally used in soups and salads, also in cool drinks, together with Borage.

Rue (Ruta graveolens).—The Natural Order to which this plant belong is the Rutaceæ. It is indigenous to the south of Europe, and is a hardy low-growing evergreen shrub, which will flourish in any ordinary light soil. It is easily propagated by cuttings, which may be inserted under hand-glasses or in pots or pans in a close frame, either during the autumn or in spring, and the cuttings, when rooted, should be planted out in a bed in lines, at a distance of a foot or 18 inches from plant to plant. The leaves have a strong and somewhat unpleasant smell, and are exceedingly bitter. The plant was formerly held in considerable esteem on account of its supposed medicinal virtues, and an infusion of the leaves and young shoots at the present day, is frequently given to children, as well as to adults, as a remedy for stomach disorders, &c. Poultry fanciers also consider that the leaves and young shoots, when chopped into small portions and mixed with the soft food given to valuable birds, are of considerable importance in keeping them in a healthy condition.

Purslane, Common and Golden (Portulaca oleracea and aurea), are annual plants, belonging to the Natural Order Portulaceæ, and are both natives of South America. The seeds are exceedingly small, consequently they should be sown in seed-pans under glass in light soil, and the seeds should be very slightly covered. As soon as the plants can be handled, they should be pricked thinly into other pans, and may finally be planted in beds in the open air about the middle of May. They will be found to succeed best in a somewhat dry light soil. The leaves are used for various culinary purposes, and for salads, &c.

Chives (Allium Schænoprasum).—Natural Order Asphodeleæ, a perennial, and a native of Britain, easily increased by division, which should be performed in spring. It will succeed in any kind of soil, and in any situation. Only the green tops are used, and the flavour is that of the Onion, but much milder. It is frequently used in soups, salads, &c. It is much cultivated, or it is, at least, generally found in cottage gardens.

Mustard (Sinapis nigra) and its varieties are natives of Britain, and of the south of Europe, and belong to the Natural Order Cruciferæ. When this plant is grown for salads it is necessary to make frequent sowings of it, as it should be cut and used in a very young state, even before the first rough leaf has appeared. The seed should be sown thickly, in light soil, the surface of which should be made very smooth. The seed should be pressed into the soil with the back of a clean spade, and should then be watered through the fine rose of a watering-pot, without having any soil placed upon it; but the bed should be covered for a few days with a piece of cloth or a mat, and in the course of six or eight days (more or less, according to the season) the Mustard will be fit for use, and should be cut close to the surface of the soil with a sharp knife, and no soil having been placed over the seeds, it will be found clean and free from grit.

Curled Cress is a kindred plant to the above, and is generally used in connection with it. It belongs to the same Order, and, being also used in a very young state, requires in all respects the same treatment.

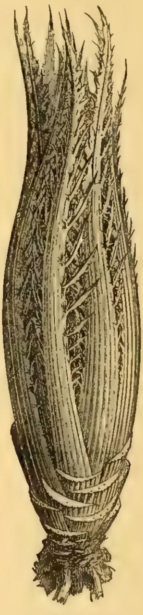
Watercress (Nasturtium officinale) belongs also to the Natural Order Cruciferæ. It is a native of Britain, growing wild in brooks and rivulets, &c., and is a well-known aquatic plant. It can, however, be easily transplanted, and successfully cultivated in any wet, damp, or comparatively shady situation, and may, during winter and early spring, be grown in pots placed under glass. It has long been esteemed as an excellent and wholesome salad plant, and is supposed to possess, in common with the two previously-named species, considerable anti-scorbutic properties. P. Grieve.

[The above are the herbs now chiefly used in English gardens, but we need hardly point out that a number of other plants were used as herbs in bygone days, and some, not named above, have yet important uses in Continental countries.]

Drying Herbs.—These should be gathered as soon as they begin to open their flowers. In drying them two methods are employed; one is to tie them into bunches, as soon as cut, and hang them up in a room or shed; the other is to first lay them out in the sun to dry; by both these methods the quality is deteriorated. If fermentation takes place so as to discolour the leaves, which occurs, more or less, when Herbs are tied up in bunches whilst green and sappy, their best properties are destroyed. In confirmation of this, it is only necessary to point to the extreme care taken by the growers of Lavender, Mint, &c., for distilling; for such purposes they are not allowed to lie together, even for a few hours. If on the other hand, Herbs are exposed to the sun, much of their strength is dissipated; they become quite brown, and that fresh green appearance which they possess when the drying is well managed is destroyed. But when Herbs have been improperly treated, loss of strength is not the worst result; there is always imparted to them a disagreeable flavour. In drying Herbs, an open shed or room, where plenty of air can be given, is necessary. Stretch out a piece of netting, such as is used for protecting fruit from birds; wire netting, if at hand, will do; on this the Herbs, which should be cut when quite dry, are laid thinly; thus treated, air acts upon them from all sides, and they dry quickly, which is the primary object, without losing their best properties. When perfectly dry, put them loosely in white paper bags, tie them up, and hang them where they will be free from damp, or they will become mouldy. Herbs, treated in this way, will be found to be but little inferior to such as are freshly cut.—T. B.

THE CARDOON.

The Cardoon came originally from the south of Europe. It is closely related to the Artichoke, from which, indeed, it may have sprung, but it differs from it in point of height, which in the case of the Cardoon is often upwards of 5 feet; in the leaves, which are much longer, and which are usually spiny; and in its smaller heads, which are more compact, and armed with spines. The flowers, like those of the Artichoke, are of a beautiful violet-blue. Of Cardoons there are several varieties, some of which are spiny, whilst others are destitute, or nearly so, of prickles. The principal varieties are, the Cardoon of Tours, a spiny variety which Parisian gardeners prefer to all others; the Spanish Cardoon which is more cultivated in the south than in the north of France; the perfectly smooth variety, which is almost as fine as the Cardoon of Tours, and which has the advantage of being free from prickles, and finally the Cardoon Puvis, much sought after in La Bresse and in the neighbourhood of Lyons; it is an almost spineless variety readily distinguished from those already named; the leaves are also larger and at the same time shorter than those of other Cardoons, which has given rise to the name, which it bears in some localities, of the Artichoke-leaved Cardoon. The Cardoon, although seldom grown to any great extent in this country, nevertheless possesses wholesome and even medicinal properties, and only requires to be better known to become a favourite winter vegetable. For the cultivation of Cardoons choose a piece of ground that requires well pulverising and a rest from heavy cropping; as it matters not how poor or stiff the soil, so that the bottom be dry.



Blanched Cardoon.

The exposure must be an open one, as they require a free circulation of air and all the sun possible. Having marked off the spaces for the trenches and ridges, allowing 6 feet for each, those spaces marked out for the ridges are manured well and dug, for the improving of the pieces of ground for other crops, as well as providing for the Cardoon, must be kept in mind. The trenches are next dug out 1 foot deep, laying the soil right and left on the ridges, and breaking the lumps well as the work proceeds. The sides of the ridges should be well sloped off, and beaten smooth with the back of the spade. The trenches being now ready, we wheel into them, to the depth of 4 to 6 inches, a previously prepared compost, consisting of chopped turfy soil, good, solid, half-rotted manure, and road drift or fine ashes, and, if at hand, some burnt clay, in about the proportion of equal parts of each kind. This is forked into the trench in such a manner as to keep the compost merely covered, while the ground below is loosened to the depth of a foot at least, and this finishes the trench, which ought to lie uncropped until the season for planting out the Cardoons has arrived, by which time the ground will be in fine order to receive them. Two rows of dwarf Peas are generally sown upon the ridges, and a row of Spinach between; these will be off before the Cardoons require earthing up. In the first week in May sow the seeds in thumb pots, placing two sound seeds at opposite sides of the pots, and plunge the pots in a cold frame, which is kept close until the plants appear, when plenty of air is admitted, to prevent them drawing up weakly. In a fortnight after the plants are up, they will be strong enough to plant out in this order—one row up the centre of each trench, 18 inches apart, and a row 2 feet from it in quincunx fashion on each side. Planting two plants together is to guard against losses by insects, and when all danger from this is over, the weakest can be destroyed. Raising them in pots, instead of sowing them in the ground, is to prevent gaps in the rows, and to give the opportunity of having all the plants in the ridge of equal size, so that when earthed-up, the plants being alike in strength, the same quantity of soil will be required for all. The weakest plants may be kept in the cold frame ten days longer, which, with a second sowing, will give a succession. Water the newly turned out plants, and loosen up the soil between them, which finishes the planting part of the business. If dry weather succeeds this operation, the plants will require watering once or twice, until they get established, after which they will only require to be kept clear of weeds till October. This will be most advantageously done by forking among them occasionally, which will keep the weeds in check, and promote the growth of the plants better than the use of the hoe. In the beginning of October, the most forward trench of plants will have attained their full growth, and a sufficient number of well-twisted hay-bands must be provided for winding round them. Take advantage of a fine dry day, and commence by carefully bringing all the leaves into an upright position, in which they should be held by one person while another fastens the hay band round the bottom of the plant, and winds away tightly until the whole of the stalk is bound round, and the end of the rope secured. Proceed in this way until the trench is completed, and then earth-up till the bands are covered with the soil, which should be pressed very tightly round the plant at the top, to exclude air and moisture as effectually as possible. Proceed in the same manner with the remaining trenches when fit, until the whole are finished. Haybands are said to rot the plants; but, by deferring the earthing-up till October, and by twisting the bands well, and fastening them tightly round the plants, very few failures occur. Some have tried blanching by fastening the leaves closely together with string and matting, and putting an earthen drain pipe over the plants, and filling up with sand. This plan answers admirably; the whole of the leaf-stalks were perfectly blanched, quite crisp, and fit for use. The adoption of this plan prevents the loss of room occupied by the ridges, as no soil would be wanted for earthing; but it takes a pipe 7 or 8 inches in diameter for a well grown plant, and these, if many are required, are expensive. As to cooking, after the Cardoons have been trimmed and washed, and their outside leaves removed, cut them into pieces 4 inches long. Put the pieces into a pan of cold water; when boiled take them out, and with a cloth rub the outer skin until it can be easily removed. After this is done, let them be well washed, and boiled three hours in good stock or broth. Serve them very hot with brown sauce made with good gravy. It is an improvement in serving the Cardoon to put some marrow round it, if you have any. Q.

Tomatoes from Cuttings.—Like Mr. Temple (see p. 321), we propagate our winter-fruiting Tomatoes from cuttings; some of Hathaway's Excelsior, put in about six weeks ago, have already set their fruit. Good-sized branches, say a foot or more in length, if not too hard, will strike in a week if put in a moist house or pit, in a temperature of about 65°. We fruit them in a span-roofed succession Pine-stove, by planting them in slate-troughs and training them up wires near the glass over the pathway, after the same method practised with our summer Melons. A plant of Hepper's Goliah, treated thus, has been fruiting since last May; on one occasion we picked from it nearly a stone of fruit. They must have the young wood occasionally thinned out where it is super-abundant, as with Cucumbers growing on trellises. An occasional sprinkling of guano before watering has a beneficial effect after they have been in bearing for a time.—H. J. C.

Diseased Tomatoes.—Although I had before heard of disease in the Tomato I had not met with any instances of it personally until this year, and these do not occur in plants grown against walls, which have continued healthy, but in a quantity of plants that were growing in an open frame, where they had been planted as an experiment. When the disease attacked them they had just begun to ripen their fruit, of which there was a heavy crop, and the lights being allowed to remain off a little too long, the disease spread with great rapidity, especially after rainfall. No doubt, had the glass been placed over them a week earlier the crop would have been saved. The disease is identical with that which affects the Potato, and I fear will render open-air culture of the Tomato, except on favoured walls, almost impossible.—A. D.

Two-year-old Tomatoes.—At Bearwood, Mr. Tegg secures large crops of Tomatoes from plants trained at the back of Peach-houses, the plants being carried to the top of the house. Here they both serve the purpose of a light green cover for the wall and afford large crops of fruit all through the season, which is worthy of remark, inasmuch as the disease which has affected the fruit in so troublesome a manner where grown out of doors does not appear to affect it within a house, where it remains perfectly clean and healthy. The plants are not raised from seed, but from cuttings—in fact, Mr. Tegg keeps his house plants in growth so long that he has no difficulty in securing cuttings in the spring for the ensuing year. Last spring, emboldened by the fine healthy appearance of his indoor Tomatoes, he determined to let them remain over the present season, and the result has been most satisfactory, as a fine crop has been produced. To make sure, however, another house was planted, as usual, so that Tomatoes have been produced in great abundance.—A. D.

Late Scarlet Runners.—On the 13th of October Scarlet Runners were loaded with tender pods, with myriads more coming, and the bloom as bright and abundant as in July. I ("T. H.," in "Gardeners' Magazine,") make note of the fact because, in most gardens Runners are now quite worn out and worthless, and, on the other hand, we always have an abundance of the finest quality far on into the autumn, and in mild seasons as late as December; this on heavy clay land within six miles due north of St. Paul's Cathedral. About the middle of June we sow a few rows in a sheltered garden, selecting the highest and dryest ground. The plants are thinned to a foot apart and supplied with the best stakes obtainable. The rest is a matter of weather and so forth. They begin to bear in August, become very fruitful in September, and so continue until frost makes an end of them. They are of great value now that the choice of outdoor vegetables is limited, and it surprises me that few people take measures to secure them.

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

The Early Rose Potato.—I have eaten this Potato, grown in some soils, equal to any Potato I have ever tasted; while on other soils it has been as bad in flavour as possible. At Bishopwood House, Highgate, this season it was by far the best flavoured of any kind grown there.—E. Bennett, *Rabley.*

—— Perhaps Mr. Williams's soil, in the neighbourhood of Ormskirk (see p. 180), is unfavourable to this variety. Here, with ordinary cooking, it is considered a very good Potato, if it be allowed to get quite ripe before taking up. I consider the flavour excellent.—J. M.

Clubbing.—In some places this is a troublesome disease, the best remedy for which is wood ashes dropped into the holes in which the plants are set. All the Cabbage tribe is apt to club; but I have found Veitch's Autumn Giant Cauliflower, less liable to do so than any other variety with which I am acquainted.—W. W. *Eaglehurst.*

Seakale, which we grow from seed annually and force the same year, is usually as strong as that grown from pieces of the roots when two or three years old. Some of our plants this season are about 4½ inches across and proportionately thick in the crown.—Crambe Maritima.

Yeast as Manure.—I should be glad to know if any of your correspondents have used yeast or barm as a manure. I hear that it has become a mere drug in the market, and that, at large breweries, for want of a ready sale, it is run down the drains. Firstly, for what garden crops may it be suitably employed? Secondly, will it improve the crop if it be thinly spread on Grass land?—J. E. C.

Alpha Potato.—Mr. Dean (see p. 333) says that a good specimen of this Potato has not been seen this season. We send you a few of ours, that his statement may be corrected. We have plenty like them, as absolutely free from disease. It has already been certificated by the Royal Horticultural Society for its quality, and is a most excellent introduction.—Hooper & Co., *Covent Garden.* [The specimens sent are large and clean, and in every way excellent.]

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VAN HOUTTE'S "FLORE DES SERRES."

A third instalment, containing parts of 7, 8, and 9 of the 21st volume of this richly-illustrated work has just reached us, barely five weeks after the last triple number was published. The parts now under consideration contain the following plant portraits, many of them, as is usually the case, being reproductions of plates which have already appeared either in English or Continental horticultural serials. This is much to be regretted where there is such an infinite number of new and interesting plants continually being introduced, portraits of which, executed and coloured in the almost faultless manner in which Mr. Van Houtte produces his plates, would be so very welcome to all subscribers to the work and all growers and introducers of new and rare plants. Plate 1 represents Mr. William Paul's new Hybrid Perpetual Rose Peach Blossom, a light pink variety of great beauty. Plate 2 represents Steudnera colocasiæfolia, a stove Aroid from South America, with handsome foliage resembling that of Alocasia Jenningsi, and handsome yellow blossoms, with a conspicuous rosy-shaded throat, much more ornamental than blossoms of this class of plants usually are. Plate 3 represents the seed cone of Araucaria braziliensis, which has not yet, we believe, coned in this country, as the variety is, unfortunately, not hardy in England, and only barely exists, but does not thrive in the mild climate of the south of Ireland. The cone is most distinct and ornamental, much smaller, and more delicate and compact in structure than that of the kindred variety A. Bidwilli, which is also figured in this number on Plates 22—3, and which has produced cones for the last two or three years in the temperate-house at the Royal Gardens, Kew. The cone here figured was imported from Brazil. Plate 4 represents that curious plant Brodiæa volubilis, and is a reproduction of the plate in "Botanical Magazine," No. 6,123. Plate 5 represents that handsome Aroid Alocasia Lowii, now so well known in all good collections of stove plants, and is again a reproduction of the plate in the "Botanical Magazine." Plate 6 is a portrait of Campanula Scheuchzeri, which is a pretty dwarf-growing variety of this hardy border plant, with medium-sized rosy-purple flowers. It has already been figured in Loddige's "Botanical Cabinet," plate 485. Plate 7 represents an apparently distinct and handsome Aroid Alocasia plumbea, much reduced in size to get it within the limits of a single plate, as, when the leaves are fully grown, they are said to be five times as large as they are here figured. It is by no means a new plant, having been in cultivation for the last forty years in the Brussels Botanical Garden. It was first named by its introducer A. metallica, but is quite distinct from the variety so named by the late Sir W. Hooker. Plate 8 represents that pretty, but seldom seen, Irid, introduced by Sweet in the second series of his "British Flower Garden," under the name of Cypella Herberti, and which has since been figured by Dr. Lindley in the "Botanical Register" under the name of Morœa Herberti; then in the "Botanical Magazine," plate 2,599, as Tigridia Herberti; and, again, by Kerner, as Marica Herbertiana. We should have thought that nothing could be gained by again figuring this old plant. Plates 9 and 10 represent that well-known stove Aroid Alocasia metallica, and are again a reproduction of plate 5,190 of the "Botanical Magazine." Plate 11 represents the pretty Bambusa striata, with green foliage and crimson-tipped inflorescence, the stems of which are distinctly striped with gold. It is a native of China, and said to require the protection of a greenhouse in this country. This plate is also a reproduction of plate 6,079 of "Botanical Magazine." Plate 12 represents three handsome varieties of Parrot Tulips, subjects much more suitable to the "Album Van Eden," than to such a work as the "Flore des Serres." Plate 13 represents Zamia Skinneri, with its curious fruit, and is again a reproduction of the plate in "Botanical Magazine." Plate 14 is a protrait of Calyptrion Aubletii, an exceedingly beautiful and free-flowering sub-scandent greenhouse shrub, producing, apparently in great abundance, axillary bunches of large pure white flowers, somewhat resembling in shape those of the well-known and valuable Impatiens alba. The foliage, also, is of a deep and ornamental shade of green, producing a most pleasing contrast to the pure white blossoms. It is said, also, to exhale an odour of Violets, and is easily propagated by cuttings. It is a native of the Antilles, New Grenada, and the northern parts of Brazil, and has also been described by various botanical authorities under the following different names:—1. Corynostylis Hybanthus; 2. Viola laurifolia; 3. Viola Hybanthus; 4. Jonidium Aubletii. This is, in our opinion, by far the most interesting plant figured in these numbers, and we hope to see it shortly in general cultivation in our greenhouses, where we are sure it will prove a valuable acquisition. Plate 15 represents a curious and rather pretty little bulbous plant named Rhinopetalum Carelini, from Mantchuria, said to be hardy; it is only from 6 to 8 inches in height, and in stem and foliage somewhat resembles an Alstrœmeria, while its blossoms are like those of a diminutive pink Lily, with prominent carmine stamens. Dr. Regel imported bulbs to St. Petersburgh in a living state, but the extreme cold of the Russian winter caused them all to perish. This plate is reproduced from one in Dr. Regel's "Gartenflora." Plate 16 represents an old and well-known scarlet-flowered Irid, named Rigidella immaculata, already figured twenty-six years ago by Mr. Van Houtte in his own work, the present reproduction this time of one of his own plates being owing to a forgetfulness, for which he craves the indulgence of his readers. Plates 17 and 18 represent Crinum scabrum, a very handsome variety of this somewhat coarse-growing family of Amaryllids; it has pure white flowers, with a broad and most distinctly-marked carmine stripe down each petal, produced in umbels of from five to six blooms on tall foot-stalks, springing from the crown of the bulb and near the base of the foliage-stem; it is a native of Brazil, and has been already described by Herbert, under the name of Crinum scaberrimum, and has been figured in the "Botanical Magazine," plate 2,121, as Crinum undulæfolium. Plates 19 and 20 represent the greenish-yellow-flowered variety of the Vanille plant, under the name of Vanilla lutescens. The flowers begin to open about 10 p.m. and do not attain their full expansion till about five the following morning, when they exhale a slight lemon-scented odour like the better known white-flowered variety V. planifolia. They require artificial fecundation to make them produce their highly aromatic Bean-like pods, so valuable for flavouring confectionary. Plate 21 is a portrait of the pretty little Puschkinia sicula, a rather larger and more conspicuous form of the better-known P. scilloides, producing, in the very early spring, bunches of porcelain white flowers, veined down the centre of each petal with blue. Plates 22 and 23 represent the cone of Araucaria Bidwilli, already referred to in comments on plate 3 in this notice. Plates 24 and 25 represent a fruiting branch of an immense Filbert Nut named Corylus Colurna, from Trebizond. Plates 26 and 27 are a reproduction of the portrait of that most singular and beautiful Rose, Glazenwood Beauty, which appeared in a recent number of the "Floral Magazine." The blooms of this Rose are bright golden-yellow, deeply, but irregularly, striped with carmine. It has been recently introduced from Japan by Mr. Woodthorpe, and, if at all like the picture, should be considered as a most valuable acquisition by all lovers of the queen of flowers. Plates 28 and 29 represent Saxifraga Fortunei tricolor, an old and well-known favourite, suitable for the decoration of hanging-baskets in a conservatory, while its stoloniferous habit of growth renders it exceedingly easy to propagate; its variegation, however, is unfortunately not over constant, and large portions of the leaves sometimes lose it altogether. W. E. G.

FAIRY-RINGS.*

It is known that Fairy-rings occur chiefly, though not exclusively, on poor pastures, and that they are discouraged by high (especially high nitrogenous) manuring. In the experiments on permanent meadow-land, conducted in Mr. Lawes's park, at Rothamsted, there are twenty different plots, representing nearly as many different conditions of manuring, the same conditions having been continued on the same plot in most cases for twenty years in succession. Some of these plots yield an average of little more than 1 ton of hay per acre, and others more than 3 tons. On some Fairy-rings occur, whilst on others they do not. The flora generally, so to speak, has, indeed, changed under the influence of the different manures in a very striking degree. Thus speaking roughly, there are certain plots on which there develop annually from forty to fifty species or more, whilst in others even less than twenty are in some seasons found. These differences, it should be remarked, are the result of the different conditions as to manuring, the whole area, so far as could be judged, having been pretty uniform in the character of the herbage at the commencement of the experiments. It will be of interest, and be found not irrelevant to the special subject of this communication, to summarise, as briefly as possible, a few of the most characteristic changes which have taken place in the botanical character of the vegetaton under the influence of certain characteristic conditions as to manuring. On three occasions, at intervals of five years (namely, in 1862, 1867, and 1872), a sample of the produce from each plot has been carefully taken and submitted to careful analysis. Taking the average of the three separations, the following are some of the results:—Continuously without manure (plots 3 and 12), the number of species found in the produce has averaged forty-eight, of which seventeen are Grasses, four belong to the Order of Leguminosæ, and twenty-seven to other Orders. The percentage by weight of Grasses is about 62, that of the leguminous herbage

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* Dr. Gilbert read an interesting contribution to our knowledge of this subject before the Linnean Society, which we take from their journal.

8, and that of the remaining species, which it will be convenient to term miscellaneous herbage, 30.

With a purely mineral manure, containing superphosphate of lime and sulphates of potass, soda, and magnesia, but no nitrogen or organic matter (plot 7), the average number of species found has been forty-two, of which, as without manure, seventeen are Grasses, four Leguminosæ, and the remainder miscellaneous. But the produce has contained, on the average, only 55 instead of 62 per cent. of its weight of Grasses, nearly 26 instead of only 8 per cent. (as without manure) of Leguminosæ, and only 19 instead of 30 per cent. of miscellaneous herbage. With the same mineral manure as on the last plot (7), but with the addition of a large quantity of ammonia-salts, in plot 11, the average number of species found has been reduced to twenty-one of which thirteen are Grasses, one only belongs to the Order Leguminosæ, and seven to other Orders. But instead of 62 per cent. by weight of graminaceous herbage as without manure, or 55 per cent. as with the mineral manure alone, we have now, with this mixture of the same mineral manure and a great excess of ammonia-salts, 92·5 per cent. by weight of Grasses, only 0·01 per cent of leguminous herbage, instead of 8 per cent. as without manure, and 26 per cent. with the purely mineral manure; and we have less than 7½ per cent. of species from other Orders, instead of about 30 per cent. as without manure, or 19 as with the purely mineral manure.

It will be readily understood that, with the great variety of manurial conditions offered by the twenty different experimental plots, there is very great variety in the development and relative predominance of the representatives of different orders and genera intermediate between the marked extremes above referred to. With reference to the extreme cases cited, the prominent point to observe is, that the Grasses dominate to an extraordinary degree where large quantities of ammonia as well as mineral manure were employed, whilst under these conditions, the leguminous herbage was all but annihilated, and the miscellaneous species were very much reduced both in number and in weight per cent. in the produce. On the other hand, the percentage proportion and the actual quantity of the leguminous herbage was enormously increased by a mineral manure containing potass but no ammonia, or nitrogen in any other form, or organic matter of any kind. Here is obviously a remarkable instance of domination under well-defined artificially induced conditions. But the facts are the more remarkable since it is the graminaceous herbage (which under equal conditions of ripeness contains a comparatively low percentage of nitrogen) that is so strikingly developed under the influence of nitrogenous manures; whilst the leguminous herbage which is characterised by a very high percentage of nitrogen, is specially developed by mineral manure containing potass; and when to these nitrogenous manures (especially ammoniacal) are added the plants of the Leguminous Order are almost abolished; these striking results, brought out in experiments on the mixed herbage of Grass land, are moreover perfectly consistent with those observed in the growth of individual graminaceous and leguminous crops in rotation on arable land. Thus a crop of Wheat, Barley, or Oats is, other things being equal, very much increased by nitrogenous manures. A crop of Clover or Beans, on the other hand, although it may yield three, four, or five times as much nitrogen over a given area, as a crop of Wheat, Barley, or Oats growing on the same description of land, is not characteristically benefited by direct nitrogenous manures. But these leguminous plants will develop and assimilate an enormous amount of nitrogen under conditions in which the Graminaceæ would languish, and they at the same time leave the land in improved condition for the growth of the Graminaceæ. It must be admitted that the source of the much larger quantities of nitrogen assimilated over a given area by plants of the Leguminous than of the Graminaceous Order, and of the residue of it left by them in the upper layers of the soil in a condition available for the Graminaceæ, is not yet conclusively explained.

Reflecting upon these facts, Mr. Lawes and myself have often felt that if we could determine the source of the nitrogen of the Fungi growing in Fairy-rings, some light might perhaps be thrown on the question of the source of the nitrogen of the Leguminosæ which we cultivate separately in rotation, or which grow in association in the mixed herbage of Grass land. It will be readily understood that the nearly twenty conditions as to manuring, and as many different conditions as to flora, which the experimental plots in the Park at Rothamsted offer, afford an extremely favourable opportunity for observing the conditions, both as to manure and association, under which Fungi, and especially those occurring in the so-called Fairy-rings, most readily develop. Accordingly, for some time past, Mr. Lawes has observed their occurrence and development; and it is the results of his observations on these points that I am enabled to communicate. Before stating under which of the conditions of manuring Fairy-rings have most developed, it is of interest to observe that, according to published analyses of various Fungi, generally from one-fourth to one-third of their dry substance consists of nitrogenous matter. The dry substance, further, generally contains from 8 to 10 per cent. of mineral matter or ash, of which about 80 per cent. is phosphate of potassium. In fact, Fungi would appear to be among the most highly nitrogenous of plants, and to be also very rich in potass. Yet the Fungi have developed in Fairy-rings only on the plots poorest in nitrogen and potass in such condition as to be available to most other plants.

To go a little further into detail:—In November, 1874, six species of Fungi were observed on the unmanured plot (3), where also they were more abundant than on any other plot. They were named by the Rev. M. J. Berkeley as follows—Boletus erythropus, Hygrophorus pratensis, H. coccineus, H. virgineus, Agaricus geotrupus, and A. æruginosus. On the plot with superphosphate of lime alone (4.1) there were two species, namely Hygrophorus coccineus and Clavaria vermicularis. On plot 8, with superphosphate of lime and sulphates of soda and magnesia, but without potass for fourteen years, were two species, Hygrophorus virgineus and Agaricus nudus. On plot 17, with nitrate of soda alone, small patches of Hygrophorus virgineus and Agaricus furfuraceus were found. On plot 16, with nitrate of soda and sulphates of potass, soda, and magnesia, a few of Hygrophorus virgineus. And on one or two other plots there were individual specimens of Agaricus arvensis of very large size. Fairy-rings occurred almost exclusively on plot 4.1 (with superphosphate of lime alone), and on plot 8 (with superphosphate of lime, and sulphates of soda and magnesia, but no potass). In May 1875 only one species, namely Marasmius Oreades, was observed. On the 19th there were comparatively few specimens to be found. On the 31st they occurred in small numbers on plot 1 (with farm-yard manure and ammonia salts 1856—1863, but since ammonia salts only), on plot 2 (with farm-yard manure alone 1856—1863, but since unmanured), on plot 3 (unmanured for more than twenty years), and on plot 7 (with superphosphate of lime and sulphates of potass, soda, and magnesia for twenty years). On plots 4.1 and 8, on the other hand, they could be counted by hundreds; and on these two plots only were they found in Fairy-rings. On plot 4.1 (with superphosphate of lime alone) there were six more or less complete Fairy-rings, on some of which hundreds of the Fungi were growing in thick patches, generally surrounded by the very luxuriant Grass of the ring. On plot 8 (with superphosphate of lime and sulphates of soda and magnesia but no potass for fourteen years) there were three large Fairy-rings with the Fungi growing very thickly on them, the Grass of the rings being also very luxuriant. There were, besides these rings, a number of patches down one side of the plot showing many of the Fungi and very luxuriant Grass; and there was one large patch of very luxuriant Grass showing no Fungi now, nor was mycelium found in the soil; but in the autumn this patch gave a crop of Agaricus nudus. On this plot especially the increased growth of Grass on the rings and patches where Fungi have occurred is so considerable that it must appreciably affect the amount of produce on the plot; and the Grasses most favoured seem to be Poa trivialis and Holcus lanatus.

Thus then the highly nitrogenous Fungi flourished strikingly, and appeared in Fairy-rings, on two plots only, on neither of which is nitrogen, or of potass applied as manure—conditions under which the development of the Graminaceæ is extremely restricted, and their limited growth is due to a deficient available supply of nitrogen or of potass, or of both, and where the competition of the Leguminosæ is also weak, in the absence of a more liberal supply of potass. The questions obviously arise whether the greater prevalence of Fungi under such conditions be due to the manurial conditions themselves being directly favourable for their growth, or whether other plants, and especially the Grasses, growing so sluggishly under such conditions, the plants of the lower Orders are the better able to overcome the competition and to assert themselves. On this point the further questions arise whether the Fungi prevail simply in virtue of the absence of adverse and vigorous competition, or rather to a greater or less extent as parasites, and so at the expense of the sluggish underground growth of the plants in association with them; or, lastly, have these plants the power of assimilating nitrogen in some form from the atmosphere, or in some form or condition of distribution within the soil not available (at least when in competition) to the plants growing in association with them? It is with the hope of arriving at some answer to these questions, either from the existing knowledge or the future observation of botanists and vegetable-physiologists, that we have felt it desirable to comply with the request made to us, to bring our own observations, made from a special point of view, before the Fellows of the Linnean Society. In aid of this object it may be well to state some other facts which we have noticed in connection with the formation and extension of Fairy-rings. It is probable that the Fungi growing on meadow-land owe their occurrence in the first instance to the accidental droppings of animals or birds. Individual specimens appear and sometimes grow to a large size, even on some of the highly manured plots; but patches, or rings, are chiefly found on the poorly manured or exhausted plots—that is to say, where there is a marked absence of luxuriance in the vegetation generally. So far as may be judged from observation hitherto, patches may form and die out without development and extension into rings. The formation of an annually increasing ring seems to require special conditions, both as to soil and association. In the case of mere patches, some examination of the soil in spring and autumn have not shown a marked development of mycelium where it would be expected if there were to be extension, though it would appear that if the conditions be especially favourable, they may enlarge and endure for some time. In the case of extending rings, on the other hand, the soil under the outer portion of the circle generally shows to a depth of a foot or more, according to the character of the soil, an enormous development of mycelium for some time prior to the appearance of the above-ground growth. It is to be particularly observed that this development of mycelium is always under the outer portion of the ring, and is not found within it. When a ring is formed, what happens seems to be the following:—From some extraneous cause, such as above referred to, a patch of Fungi is established. The plants falling and dying supply a rich nitrogenous (as well as mineral) manuring to the adjacent herbage. A patch of dark green luxuriant Grass, generally several inches higher than the surrounding herbage, succeeds. This being cut or eaten off, the soil may sooner or later become even more exhausted than before; and it is accordingly frequently observed that the Grass within is less luxuriant than that outside the ring. Initiative experiments, upon which, however, we would not place implicit reliance, have, indeed, shown a lower percentage of nitrogen in the surface soil within the circle than at an equal depth either under or without the circle. Leguminous plants are not excluded from the area within the ring; but whilst Lathyrus pratensis and Trifolium pratense, plants which on the land in question have shown themselves very dependent on artificial supplies of potass, seem to be discouraged, Lotus corniculatus and Trifolium repens, species which maintain their position under marked conditions of exhaustion of soil, are fairly abundant. At any rate, it would appear that, in the case of rings, the soil underneath the Fungus-growth has become unfitted to support another crop, or successive crops, of Fungi. Accordingly, supposing the soil of the plot to be favourable, the ring developes always outwards—that is, on what is, to the Fungi, virgin soil; and hence the annual enlargement.

It will be seen that in these facts we have an interesting illustration of what may be called natural rotation. The original Fungi probably receive their nutriment from extraneous sources; but once established, they must, for the extension into "rings," depend upon other supplies, which, if due to the soil itself, are obviously unfavourable, either in condition or in distribution, to the surrounding vegetation, and especially to the Grasses, which do not flourish until the matter taken up by the Fungi becomes available to them as manure, when at once they show very great luxuriance. Or is it, as already suggested, that the mycelium develops, so far as its nitrogen is concerned, not at the expense of that which may be said to have become a constituent of the soil itself, but of that accumulated in the vegetable remains from former growth within the soil, or even parasitically—that is, at the expense of the nitrogenous matters of the roots of not dead but very sluggish vegetation? These points are obviously of very considerable interest from both a chemical and a physiological point of view; and it is much to be hoped that botanists and vegetable physiologists who may have special knowledge on the subject will bring it to bear on the questions which seem to be at issue—or that, in so far as such knowledge is not yet available, some may be induced to take up the investigation with a view to the elucidation of that which, to us at least, seems to require explanation.

Seedling Potatoes.—In addition to what Mr. Fenn is accomplishing as a raiser of Potatoes it is evident that much work of the same description is being done by others. This was evidenced at the Alexandra Palace Potato show, many very promising seedling kinds being here and there staged. A Mr. Lye, of Cliffe Hall, Market Lavington, exhibited dishes of a flat round kind and a kidney-shaped variety, both of which were very handsome in shape and markings, as each had white skins blotched with rosy-pink. Mr. Porter, of Old Meldrum, had dishes of Porter's Excelsior and Porter's Purler, both very handsome white round kinds, the former especially being very promising. Messrs, Waterer, of Bagshot, exhibited samples of a long white kidney of the Fluke type, that is evidently a first-rate keeping variety, some grown last year being still very plump and clean. A Mr. E. Bennett, of The Schoolhouse, Enville, Stourbridge, had a very fine round kind named Schoolmaster; it bore a close resemblance to the round forms of Snowflake. He also exhibited a variety named Rose Seedling, that appeared to have considerable merit. Messrs. Bliss & Sons, of New York, had four seedlings that attracted some attention, but the only variety that took the fancy of connoisseurs was Pringle's No. 10, a long neat red kind, having shallow eyes, and evidently the result of a cross between Early Rose and Vermont Beauty.—A. D.

Acorn Poisoning.—A calf died here the other day, and I found that it had been eating the acorns of some large Oak trees growing in the meadow in which it was placed. Some say that acorns are injurious this year because they fall before they are ripe, and I am told that if acorns are allowed to sprout before they are given to pigs or other animals no harm ever befalls them, and there is no doubt that a chemical change does take place in the acorn after it has began to germinate.—H. E. W.

OBITUARY.

Mr. Rucker's death, at the age of sixty-six, which took place at Wandsworth the other day, makes a sad blank in the horticultural world. Foremost, for some forty years, in all that tended to aid and extend successful Orchid cultivation, he spared no expense in keeping up his own collection. His tact, temper, and liberality, secured the aid of first-class head gardeners; but he was in reality his own gardener-in-chief. Those who have been privileged to accompany him in his evening inspection of his plants by lantern-light, know how thoroughly and intimately he understood them all. His garden, always open to those who studied or valued plants, has taught most valuable lessons to many. His place can scarcely be filled up by any living Orchidist. In private life, the charm of his conversation, aided by his wonderful memory and quick insight into character, his unvarying kindness of disposition, his quiet and unostentatious readiness to help with kind offices or charity, endeared him alike to young and old, rich and poor.

The Edelweiss (Gnaphalium Leontopodium).—Having brought home several plants of this and also seed, I should be glad to know if it is hardy here; or must it be kept in a cold frame?—Salmoniceps. [It is a perfectly hardy plant everywhere in this country.]

Ampelopsis Veitchii.—This is one of the most beautiful of hardy climbers at this season. We have a plant of it on a wall, and its leaves form quite a mass of beautiful crimson-scarlet, much more striking than that of the old Virginian Creeper.—W. Whitaker, *Crewe Hall.*

Climbers to flower at Christmas.—I wish this season to cover the roof of my greenhouse, which is 50 feet long by 13 feet in width, with Climbers. I want more flowers in winter, especially about Christmas, than in any other month. What climbers would it be best to plant?—Enquirer.

Winter Flowers.—Fuchsias at all times are beautiful, but in mid-winter there is certainly nothing more charming than blooms of white Fuchsias wired together, which form a most elegant bouquet. In September we cut off all the flowers from plants struck last spring, pot them and place them in heat, and they are always useful in winter.—G. R.

Finely-flowered Lapageria.—In the conservatory at Abney Hall is a plant of Lapageria rosea which has borne this season no fewer than 300 flowers, a number, or thereabouts, which it produces annually. The Lapageria requires little attention beyond a few extra syringings, when making its young growth, to keep down green-fly.

The Ivy-leaved Sowbread (Cyclamen hederæfolium).—This pretty little species is now flowering freely on the rockery at Kew. Its variegated greyish-green foliage and nodding, white, rosy-tipped flowers are as fresh as if grown in a frame. Several of the other hardy kinds are now very pretty in Mr. Barr's nursery at Tooting, where they do well under the shade of tall trees.—B.

Crocus byzantinus.—This, which is one of the best of the blue or lilac-flowered species, is now in bloom on the rock-work at Kew, and its flowers look singularly beautiful as they peep through the margin of a fresh green, mat-like growth of the pretty little Mentha Requienii. This is a hint well worth attention, for our autumn-flowering Colchicums and Crocuses are too frequently spoiled when planted in the open border, by their fragile flowers being dashed and soiled by rains.—B.

Gesnera maculata.—This is now in bloom in the Heath-house at Kew. It bears a panicle of pale bluish-lilac Gloxinia-like flowers. The stem of this plant is pale green, curiously mottled or streaked with brown, and it is clothed with large, drooping, heart-shaped leaves, which are serrate at their margins and rosy at the back. It is a free-growing and useful decorative plant.—B.

Chrysanthemums.—These are now coming fast into bloom, and well deserve all the attention that can be bestowed on them, so greatly do they tend to enliven our gardens at this dull season. I am of opinion, however, that, as a rule, they are propagated too early in the season; for I find that, although we do not usually propagate our Chrysanthemums until the majority of growers have their's potted off, yet at blooming time our plants are equally fine and early as their own, and, what is of greater importance, are clothed with the freshest foliage down to the surface of the pots.—J. Groom, *Henham.*

All the Year Round Cabbage Lettuce.—This is the most appropriately named Lettuce in cultivation, and may be had in first-class condition with the least labour of any variety that I know. It requires but little space, as the leaves fold over each other until the heart is as hard as a ball. If I were limited to one variety to supply a salad every day of the year, I should decidedly choose this variety.—J. Groom.

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"This is an art
Which does mend nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

PLANTING TIME.

THE falling leaves remind us that the time for planting all kinds of deciduous trees and shrubs is near at hand, and, where this has to be done on an extensive scale, the necessary preparations should be made at once. A decision must first be come to as to what kinds are to be planted, due regard being had to their respective size, mode of growth, and fitness for grouping, so that they may associate harmoniously together when planted. For this purpose, it is of the greatest importance that trees having the same contour and general character should alone be selected, if groups are to be formed. The necessity for a judicious selection of this kind may, perhaps, be best illustrated by imagining such subjects as Poplars, or trees of that character, being brought into juxtaposition with a group of Beech or any other trees of similar habit, and it will at once be seen how incongruous such a disposition would be. Planting for effect will depend much on the subjects selected and the positions in which they are severally placed. It is not only necessary that the ornamental planter should have a thorough knowledge of the respective habits of all kinds of hardy trees in general use, so as to enable him to choose for them situations for which they are fitted, but it is equally important that he should be well acquainted with the soil most suitable for each, and knowledge of this kind is indispensable to those who have to carry out extensive planting, either with a view to profit or to utilise land that may be of little value for other purposes. In planting for effect, much may be done by taking advantage of the natural inequalities of the ground. On no account should a lofty growing tree be planted in a valley or in low situations, but, on the contrary, those of great stature should have the highest ground and the most prominent positions allotted them, always taking care to select such kinds only as will be likely, from the character of the soil, to grow to perfection. By a strict observance of this rule, and by planting a continuation of lower growing kinds of similar habit in regular gradation, hilly ground may easily be made to appear much higher than it really is, whilst valleys will look proportionately deeper and richer from the shadows of the well-clothed hill-top above. If it should, in any case, be thought desirable to break up the valleys or low-lying ground, it should only be done by an isolated group or two, or with single specimens of low-growing, round, or flat-headed trees, that they may in a measure assist by their low stature to throw up and elevate, as it were, those on high ground. The eye involuntarily wanders from one to the other, and a favourable impression of the diversity of the surface is thus produced on the mind. Those about to plant should not lose the present opportunity of studying the excellent effects that may be produced by judiciously blending the different varieties of deciduous trees with a view to a rich display of autumnal tints. At no time, perhaps, has Nature been more lavish, as regards leaf-colouring, than during the present autumn; and one can now see how best to arrange the different kinds with harmonious effect. There are few places of any extent where trees of some kind or other, in prominent positions, are not in a decayed condition. These are just suited for draping with brilliant leaves in the autumn; and this may be done by using the Virginian Creeper, or any of the many Vines that have handsomely-cut leaves, and that change very early in the autumn to the richest colours. The effect of these rambling from branch to branch, and forming, in their own natural way, superb festoons, would be most striking. Where trees do not already exist, favourable for this kind of drapery, it may sometimes be desirable to check, or partly destroy, the growth of an ill-shaped or valueless subject for the purpose. A prejudice exists against innovation of this kind; but, if well carried out, it would give much brightness and variety of rich leaf-colouring to ornamental grounds. Roses, too, in certain situations, are admirable for purposes of this kind. Some wild Cherries here are partly covered with them to the height of between 40 and 50 feet; and rambling, as they do, in the wildest confusion, are objects of great beauty. Then there are the Traveller's Joy, and other Clematises, too numerous to mention, all suitable for the purpose; so that we may either have the charm of flowers or natural-looking drapery and brilliant foliage almost the entire year. In planting for profit, as well as for ornamental purposes, the Larch, and Scotch and Douglas Fir should not be lost sight of. There are few of the Coniferæ more ornamental or profitable to grow than these are. Scotch Firs, if well grouped, are exceedingly ornamental after they attain maturity, and another advantage in growing them is that they are not over particular as to soil or situation, growing in the poorest of land, and in positions so much exposed to wind and weather that they would prove fatal to most other kinds. This Fir is just the tree for the hill top and may be used with great advantage as a nurse to shelter and protect rare kinds till they become established. There is much land lying waste in various parts of the country that might thus readily be turned to good account, if only the right kinds of trees are selected for planting, and proper care is taken of them for a few years afterwards to give them a chance of getting established. It is no uncommon occurrence to see acres of forest struggling between life and death, that have been planted with trees quite unsuited to the soil and situation they occupy. Soils that will grow Larch and some of the other Coniferæ fairly, may be totally unsuited to the Oak, as that requires plenty of depth and a somewhat stiff sub-soil to grow it to a really profitable size. The Spanish Chestnut comes next in value to the Oak, and is not so particular as to soil, as it will be found to succeed where the Oak would never attain to any large size. In damp situations, the Ash and the Alder are the most profitable to grow, as there is always a demand and ready sale for their timber. The Alder may be grown very profitably in damp boggy situations that would be unsuited to any other purpose without expensive draining, which, indeed, in some places, would be impracticable. It may likewise be planted by the sides of ditches, running streams, &c., where little else would succeed. In such situations it makes rapid growth. Many of the grazing or low-lying districts might be made to yield double profit by planting plenty of Alders along the margins of the dykes, or thickly in groups, in which positions they would afford a refreshing shade to the herds of cattle during the summer months. In forming young plantations, it is of the greatest importance that the land should be properly prepared. If it is intended to plant thickly, the whole of the soil, if at all hard, should be thoroughly broken up, to the depth of at least 18 inches; but, in doing this, the sub-soil should not be brought to the surface, so as to come into immediate contact with the roots of the trees to be planted. Trenching large areas of land to the above depth, may at first sight appear a very formidable and expensive operation; but, if the plants are expected to make rapid and satisfactory growth, the soil must be brought into such a state that the roots can penetrate it freely. For planting at wide distances apart, large holes, from 3 to 5 feet wide and 1½ to 3 feet deep, should be dug, in which to place the plant. Ground so disturbed will give the trees a fair start, and on this much of their after success depends. It is the greatest mistake possible to simply dig out a spadeful or so of earth, and then to thrust in the roots of a tree; in doing this they become doubled up, and the plant cramped and crippled at the outset. Careless and indifferent workmen also have a habit of lifting trees as if the roots were of no consequence, or only of secondary importance; but the great necessity there is of preserving as many of these intact as possible cannot be too often or too strongly pointed out. The safety of the roots can only be ensured by digging well round the plant to be operated on, and then carefully removing the soil with a fork, till the whole of the roots are liberated. The plant can then be moved with certainty of success, and with but little if any check. Before re-planting, any roots that may have become broken or mutilated should be cut back with a sharp knife just beyond the part so damaged; and, in planting, the main roots should be carefully laid out, and equally distributed, for the points to bend downwards in a gently sloping direction. Should the plants have travelled any great distance, or have been long out of the ground from any cause, the roots should be immersed in water for a few hours before planting that they may become fresh and plump. Many planters, from a mistaken notion of saving time, often select trees of larger size, thinking that by so doing they will produce an effect at once; but if instead of this, they were to plant only such as have been well prepared and are of moderate size, they would gain considerably, as these soon overtake those that were largest at planting, the growth of which is seldom satisfactory. Another mistake some planters make is in using seedlings that are found growing naturally in old plantations, under the impression that they will form healthy thriving trees. Such plants are invariably left with only a tap root or so—generally without a particle of fibre—and when removed from the shade and shelter to which they have been so long accustomed, to more open and exposed situations, the bark becomes contracted, whilst the plants assume a starved, stunted appearance that they seldom lose. It is far better, therefore, to obtain the plants from a nursery where they have undergone a constant course of removal, as is the practice there, so as to fit them for final transplanting when of sufficient size. Such a course of treatment induces plenty of fibre, and the extra cost for such plants is sure to repay the outlay. There are two rules that cannot be too strongly impressed on those who may not have had much experience in planting, viz., mulch heavily, and stake securely in exposed situations, as a plant cannot be expected to grow if it is always rocking about, or if the ground around it is exposed to sudden alternations of heat and cold, wet and dry. J. Sheppard.

Woolverstone.

FLOORING IN GLASSHOUSES.

There are few things which add more to the appearance of a glasshouse than a good floor; yet, in many cases, especially in old houses, this is allowed to sink into and remain in a very untidy state. The floor should always be substantially made at first, and, in order to maintain the house in an enjoyable condition, should be constantly kept in repair. Hard sandstone makes very durable flooring, and a large amount of it, of various grains and colours, is used for the floors of plant-houses; but there is one very objectionable feature in this kind of stone—when the floors are kept constantly moist, as they have to be in some structures, a green slimy substance grows quickly on the stone and renders it very unsightly, and, when once this becomes established, no amount of rubbing will remove it. For this reason alone stone is not to be greatly recommended. Mixed coloured gravel or spar is sometimes used on conservatory paths; it looks well, and can be washed, brushed, and raked when necessary, but, when damp, it adheres to the feet, and its use is, on this account, very restricted. The floors of a conservatory, which is generally connected with, or adjacent to, a drawing-room, should combine durability with cleanliness and artistic merit, and no material supplies these three requisites so perfectly as encaustic tiles. As regards design and colour, they leave little to be desired. They are quite as durable as the hardest stone, and being very smooth on the surface and close grained, they never become green, and are kept clean with a minimum of labour, as a wet cloth passed over them renews their original gloss. Plainer patterns most suitable for common plant houses, are easily obtained, and, in addition to their pleasing appearance, they are always comfortable to walk on. In laying down these tiles they should be placed on a firm foundation, and where this is wanting, it should be supplied to the depth of 6 inches by a bed of concrete, over which is spread a thin layer of Portland cement. In this substance, and while it is soft, the tiles are bedded, the joints being filled in with the same material, which gives the whole a homogeneous and neat appearance. The margin of the tiles may be finished with a rope-like pattern of tile, some of which look extremely well when used in connection with the finer pattern of floors. Edgings made of terra-cotta are equally good, and stone may be used where the edgings have to support the side shelves or other staging. A span-roof Vinery with a fixed floor or gangway of flags along the centre is always inconvenient, as the soil underneath—whence the Vines draw much of their nourishment—can never be watered or renewed without much trouble. The most suitable floor or pathway of this kind is made with wooden laths nailed together in lengths of 12 feet, their width depending on that of the Vinery. These floors are, of course, easily lifted as occasion requires. In a house 30 feet wide the pathway may be 4 or 5 feet broad. Oak is most durable for such purposes, but many other cheaper kinds of wood last a long time. The laths should be 2½ or 3 inches broad, and 1 inch thick, and they should be morticed into strong cross bars 1 inch from each other. These gangways are easily kept clean and comfortable for walking on, and, resting on the level soil, require no support. In lean-to Vineries, where the Vines are planted at a considerable distance from the back wall, a flagged floor, a few feet wide, may be laid along near the back wall. Another excellent plan for the floor of a large Vinery—where the hot-water pipes are only laid along the front, and do not efficiently heat the air at the back of the house—is to make a sunk trench along the centre of the flags, and to place in it two or more rows of hot-water pipes, filling up on both sides of the flags with cast-iron gratings. In Peach-houses, where the roots are inside, as they are in most cases, the flooring should be formed of wood laths, as recommended for span-roof Vineries. Fig, and every other kind of houses where the roots of the inmates are beneath the floor, should be furnished with lattice gangways. Six feet lengths of the cast iron grating, before referred to, may be substituted for the wood, but they are heavy, and, in many respects, not so convenient. In span-roofed forcing houses, there should, if possible, be a sunk trench, along the centre of the floor, containing pipes, and this should be covered the same as the others. This is the best means of getting the centre of the house heated perfectly, and, when the floor is damped, healthy evaporation takes place. Many good floors are made with cement, which does not harbour dirt so much as stone. In forming a floor with this substance, a layer of rough gravel, or broken bricks, should be placed in the bottom to the depth of 6 inches. Upon this should be laid 4 inches of concrete, which has been mixed with one barrow-load of lime to three of fine gravel. As soon as this is firmly set, 1 inch of wrought cement should be spread over the surface, and smoothed with a board or trowel. When this is set, a cart might be driven over it without damage occurring; and it will last good for years with ordinary traffic. Those who wish to floor their own plant houses could not do better than adopt this method, as the necessary appliances are of a simple character. A good floor for nursery plant houses, or where the cost has to be considered, may be made with a mixture of lime and coal ashes. They should be laid on in equal proportions to the depth of 4 inches, and the surface should then be smoothed like the cement; so that flower pots may stand level upon it, or where staging is fixed, pathways may be laid between. In all kinds of floors, provision should be made for draining off the surplus water conveniently and quickly. The best way of securing this is to give the floor a slight inclination towards certain corners where there is a drain, over the mouth of which a grating is laid, and which, sloping rapidly, carries off the water. J. Muir.

BERBERIS ASIATICA AS A HEDGE PLANT.

I send you two or three branches of this Berberis, which I cut to-day from a large plant, between thirty and forty years old, and one which, with several more, has its branches loaded with berries, dark in colour, but covered with a grey bloom, and forming beautiful objects in the shrubberies at this season. This fine Berberis thrives well in isolated positions, and also as a back-ground shrub, as it grows rapidly and fruits most freely where exposed. As a hedge plant it is unequalled for rapidity of growth and general appearance. We have hedges of it here many years old, carefully shorn, and varying from 2 to 6 feet in height, according to circumstances, as in many cases it forms fences to the gardens of our cottagers; such hedges should be shorn twice a year, viz., at the end of June or early in July, and again at the end of February. By the summer shearing the plant is made almost an evergreen, as the autumnal growth retains its leaves much longer than it otherwise would do; as a field hedge, the winter shearing would be sufficient. Should the hedge be neglected for a few years, it naturally grows upwards, and gets naked at the bottom, a fault that may be readily and completely remedied in one season by cutting it down to the required height. Young stock of this Berberis is easily raised from seed.

Killerton, Exeter. JOHN GARLAND.

[In the specimens sent the shoots, some 2 feet in length, were furnished at every joint with drooping clusters of fruit, each as large as a Black Currant, and numbering from eighteen to twenty in each cluster. The foliage, too, is large and handsome, and the sharp spines with which the branches are armed, cannot fail to render it a formidable hedge plant.]

PICEA ALCOCKIANA.

IN your issue of October 30th, "G. W. B." justly complains of the seeming want of interest taken in this lovely Conifer; and goes on to faithfully describe a few of its leading characteristics. I cannot, however, understand why he objects to its being called an Abies; for, besides the cones, one of the best of the generic characters of Abies is the pulvini, or little elevations, on the bark, to which the leaves are temporarily attached; and although this character is not confined to this section, it is, nevertheless, present in all the species of which it is composed—a character entirely absent in Picea. This character, moreover, is strongly pronounced in Alcockiana. It may interest "G. W. B." and others to know that a small plant of this species growing here produced this season a few imperfect cones and one perfect male catkin. The latter, which will interest botanists most, was terminal, vertical, about an inch long, including the rather long foot-stalk, and of a deep carmine colour. The cones, which were at first of the same colour as that of the male catkin, present very much the same appearance as those of A. Menziesii. For "G. W. B.'s" benefit, I may state that the cones referred to have persistent scales, and are, therefore, unlike the cones of Picea, which are composed of deciduous scales. To the description already given of A. Alcockiana by "G. W. B.," I would add that the young plants of it are broadly conical and furnished with numerous branches in regular whorls, while the branchlets are densely and horizontally arranged along the sides of the branches, giving them the appearance of huge Fern fronds, which, when wind-waved, gleam like polished silver. I have remarked that in the spring, when they start into growth, the young leaves are dull green, slightly tinted with purple; and, consequently, unlike the young leaves of other well-known species, they present no contrast with the foliage of previous years. But it is uncommonly hardy, never being in the least injured by frost. I cannot go quite so far as "G. W. B." as to say "that no Conifer yet introduced will surpass it;" nevertheless, without forgetting the individual claims of A. Engelmanni (commutata) and A. orientalis as ornamental trees, I can concientiously state that Alcockiana is by far the best of ornamental Spruces. G. S.

Hybrid Gladioli.—I was very much interested in Mr. M. Leichtlin's notes (see p. 324) on this subject, but when he alludes to Mr. Standish's hybrid Alice Maud, it has occurred to me that Alice Wilson (see "Florist," 1873, p. 73) is the hybrid meant, and this in the "Florist" is stated to be a cross between G. Brenchleyensis (a brilliant crimson-scarlet variety, raised by Mr. Hooker, at Brenchley, about thirty years ago), and G. cruentus. There may, however, be a variety named Alice Maud, of which I have not heard. Anyone interested in this subject will find much valuable information in Herbert's "Amaryllidaceæ," numerous hybrids having been raised by the author at Spofforth prior to 1837.—F. W. B.

Root Pruning *v.* **Lifting.**—Seven years ago I was sent a pyramidal tree of Williams's Duchesse d'Angoulême, which was duly planted in good loam. It grew remarkably strong but did not bear fruit. About the middle of August four years ago, I moderately root-pruned it by cutting round the roots with a sharp spade. Next spring the tree was a mass of bloom, and the following autumn I gathered 25 dozen fine Pears from it, the branches being tied and propped to prevent their breaking down. My opinion is that early autumn is the best time for root-pruning, as the tree is thereby checked sufficiently to enable it to form flower buds, and it has time to re-establish itself sufficiently to carry a crop of fruit the following year, whereas lifting ensures a great quantity of bloom, which too often drops for want of support. These remarks refer to trees on the Pear stock. On the Quince, they are more easily managed, as the roots in that case are more readily kept within a limited space, and they can be assisted by mulching and watering.—JOHN GARLAND, *Killerton, Exeter.*

NOTES OF THE WEEK.

—— A FRENCHMAN has gathered this year a fruit half Peach and half Nectarine. The word "Nectarine," in our language, leads to needless error. "Nectarines" are Peaches with a smooth skin, and should be so called.

—— NEWTOWN PIPPINS have again arrived, and have lately been selling at £3 a barrel. This price ought to reward the growers on the Hudson if anything like a fair proportion of the price goes back to them.

—— THE beautiful Paper-white Narcissus is now plentiful in Covent Garden. This is one of the neglected Narcissi which deserve a place in every garden of hardy flowers. It will probably soon be in flower in the sunny valleys in the Riviera, where it is very abundant.

—— DR. REGEL has been appointed Director of the Imperial Garden at St. Petersburg, in the place of M. de Traatvetter, who retires on account of ill health.

—— THE plant recently named Agave Victoriæ Reginæ in England, and shown by Mr. Peacock, is, according to the "Revue Horticole," really one introduced some years ago, the true name of which is Agave Consideranti.

—— MR. WHITE WALPOLE writes to us to say that Cordyline Banksii grows freely in Dr. Battersby's garden in Kerry. It is now 5 feet in height, and a noble specimen.

—— WE may remind our readers that the fine specimen Palms, Ferns, and choice table plants, belonging to Mr. J. C. im Thurn, are to be sold by Mr. Stevens, in the gardens at Champion Hill, on the 12th inst.

—— FORCED white Lilac has again made its appearance in Covent Garden, and is one of the choicest and most fragrant flowers of the season.

—— THE white-flowered Rue (Ruta albiflora), one of the most graceful of our autumnal plants, has been in full bloom in the Rectory garden, at Drayton-Beauchamp, for the last three weeks; it requires the protection of a frame in the winter. Phytolacca decandra and purpurea are also just now in full beauty.

—— THE Grape sold in our markets as the Lisbon Black, is the best of the imported Grapes. The flavour is so good that it would seem worth a trial in our Vineries.

—— THOSE interested in collections of late autumn and winter-flowering plants would do well to obtain the curious Bernardia rosea, a shrub which reminds one of a small but by no means unattractive Passion-flower. It is a tall, free-growing subject, best suited for the embellishment of pillars, &c., in the greenhouse or conservatory.

—— MR. HENRY KNIGHT writes to say that Clematis indivisa makes an excellent evergreen winter-flowering creeper. It produces masses of pure white flowers, which are most useful for nosegays. It begins flowering in an ordinary greenhouse next month; but young plants of it, introduced into a gentle heat, may be induced to bloom now. It does best when planted out, and allowed to ramble over the rafters of a large house.

—— WE regret to learn that our friend M. Ed. André is about to start on a voyage of botanical discovery in South America, and will visit Colombo, Ecuador, Peru, and Brazil. M. André is a thorough horticulturist, and one of the few who really know anything about laying out a garden, and his embarking on a collecting expedition (work that could be done by any young man with a little training in an herbarium) is a real loss to horticulture, though, doubtless, a pleasant change for himself.

—— DWARF bushy Chrysanthemums are now plentiful in Covent Garden, the largest quantity and the best plants being furnished by Mr. Tubbetts, of Chelsea. To grow these, the cuttings are put in in June in frames previously used for bedding plants; as soon as struck they are planted in the open ground with a dibber, allowing plenty of space (18 inches) to each small plant. The soil is sandy and not rich. After treatment depends on the season. This year the plants were pinched once just before showing bloom. They are soon after potted. The three forms of Cedo Nulli—golden, lilac, and white—are the very best kinds for this purpose.

—— THE once much-talked-of Eugenia Ugni is a hardy shrub of rare beauty at this season, as we are reminded by seeing a specimen of it, about 9 feet high, in Mr. Rial's garden at Old Conna, near Bray, in Wicklow. It is covered with pretty Myrtle-like flowers and delicate pinkish buds. Escallonia montevidensis is a lovely shrub in the same garden, bearing large clusters of white flowers. The gardens at Old Conna contain many examples of uncommon shrubs that thrive well under the influence of the sea in this picturesque locality. Among them are the Desfontainea, with numerous flowers; the Golden Chestnut, and various Australian shrubs.

BUTTON-HOLE BOUQUETS.

Notwithstanding the acknowledged scarcity of flowers that exists at present—the summer kinds being over, and the early spring ones not yet in—I have seen as pretty button-hole bouquets exhibited for sale during the last week as could possibly be made; and most of these only consisted of common flowers. One which struck me as being particularly tasteful, was arranged as follows:—The centre flower was a yellow Rose bud, and lightly grouped round it were singly-mounted blooms of Russian Violets, while above the Rose, and placed so as to give depth to the arrangement, was a spike of a small flowering white Heath; the whole backed up by leaves of variegated sweet-scented Geranium (Lady Plymouth) and fronds of Maiden-hair (Adiantum cuneatum). This was a simple, but, at the same time, a most effective arrangement. On account of flowers being somewhat scarce, I have lately seen many tricks, if I may so term them, resorted to. One flower, which for a moment I could hardly recognise, turned out to be three pips, in the bud state, of a pink Pelargonium (Christine), wired together, and mounted in groups of three. Three or four of these little bunches, associated with a Gardenia, in a button-hole bouquet, have a neat and pretty appearance. The pips, or young buds, of both scarlet and white varieties of Pelargonium also look well in bouquets at this season, the scarlet kinds looking as well as the buds of a Bouvardia of the same colour. Those, of course, who have always a large supply of flowers at hand need not have recourse to these expedients. It is amusing to see those, who in summer tie together two and three trusses of Pelargonium to make a bunch, carefully picking off every pip at this season, and mounting them singly. Another pretty button-hole bouquet, which I saw a few days ago in a florist's window, consisted of the following flowers, viz., a white or blush Rose bud, pips of scarlet Geraniums, white Heath and Maden-hair Fern.

A. Hassard.

Lord Bute's Vineyard.—"R. S. F." (see p. 370) cannot have read my contribution to your columns on this subject with that care which should precede criticism. I merely stated in the paragraph in question what progress the Vines had made in growth since they were planted. When describing the Vines growing on the castle wall I certainly did not institute any comparison between them and those planted in the Vineyard; nor did I ask "R. S. F." or anyone else "to believe that the two cases were parallel." I only stated facts. Some seem to think that the climate of Glamorganshire is like that of the Hebrides; to show that such is not the case I may mention that there is a place some 3 miles from this where bedding Pelargoniums and Verbenas stand out most winters uninjured, and where hardy Fuchsias form large bushes similar to those so often seen on the west coast of Scotland and in Ireland. The failure or success of this undertaking can at present scarcely be determined, and discussion is useless.—A. Pettigrew, *The Gardens, Cardiff Castle.*

Epiphyllums on Pereskias as Wall Plants.—I find these make very handsome wall plants, and, if the stocks are planted out with other creepers, they grow strongly, and may be grafted the whole height of a house in a year. They thus make a grand display at this season. When grown in pots these plants are frequently ruined by drought, to which specimens that are planted out are never subject. "Drying off," where a plant will stand it at all, is frequently carried to excess, and I am no advocate of compelling plants to rest by this method. I see our deciduous trees and shrubs cease growing when the soil is saturated with moisture, and because some plants exist under adverse treatment it is no reason that they should be benefited by it.—James Groom.

Small Connecting Pipes.—I have a Vinery and a pit at equal distances from the boiler, both heated by 4-inch pipes. The Vinery is connected with the boiler by a 2-inch and the pit by a 1-inch pipe, the return pipes being of the same size. Now, is a 1-inch pipe sufficiently large to supply a 4-inch pipe, for, if I turn the stopcock three parts off the Vinery, it has still the advantage of the pit, though the pit pipes have the highest elevation? Will some of your correspondents favour me with their experience in this matter?—G. H., *Mount House, Braintree.*

New Double Pelargoniums.—The new varieties raised by M. J. Sisley are stated by Mr. Grieve, of Culford, to be very great acquisitions, being exceedingly beautiful, and of quite a distinct race from the double sorts hitherto known. They are of dwarf and compact habit, with foliage of medium size, and distinctly zoned; the flowers are large, semi-double, the centres being loosely filled up with smaller petals, and they form large globular trusses, thrown well above the foliage. Louis Agassiz has light shaded pink-coloured flowers, which are very beautiful. Louis Buchner has light bright pink flowers, with salmon-coloured centre. Henry Lecocq has flowers of a salmon-shaded pink; the plant is dwarf, with heavily zoned foliage. Sylphide is, perhaps, the most beautiful of all, the flowers being of a rich mauve or rosy-pink colour. Of older sorts, Georges Sand, by the same raiser, is a great advance upon Aline Sisley; the flowers are large, the colour very light rosy-pink, or nearly white. When grown under glass the plant is of dwarf habit, with somewhat small and peculiarly formed leaves, slightly zoned. François Pertusati has the centre of the flower salmon, with light coloured margins. Talabot is a rich deep, velvety amaranth colour, an improvement upon Gloire de Lyon.—"Florist."

Rose Hedges.—A Rose hedge planted in the kitchen gardens here some years ago is now about 6 feet in height, and has been quite a sheet of bloom from June up to the present time. The varieties of Roses planted in it are the Noisettes, Aimée Vibert and Fellemberg—the one a pure white and the other a rosy-crimson. Both produce their flowers in large clusters, and are the freest blooming of all the Noisette section. Aimée Vibert is a valuable sort for mixing with other flowers in bouquets when white flowers are required. The Rose leaves from both kinds can be used for distilling Rose water when mixed with other varieties.—William Tillery, *Welbeck.*

—— There is, perhaps, nothing so telling in a garden or pleasure-ground, says Mr. Fleming, of Cliveden, in the "Florist," as a good hedge of Roses, and there is no Rose so well adapted for this purpose as the old Fellemberg. It begins to bloom with the opening of the spring, and continues up to the close of the autumn; and where it has plenty of room, it is for months a most splendid mass of crimson. It does for screens 8 or 10 feet high, and anyone possessing a croquet or tennis lawn, and wishing, in a rosy way, to screen himself from his neighbours' view, should buy Fellemberg for the purpose. It will also afford loads of buds for table decoration, and for cutting, when others are all gone. There is, moreover, no better Rose for making Rose-water; if gathered with the hip, it is here considered equal to the Old Perpetual. A hedge of from 5 to 6 feet high wants very little support, and quite as little training or pruning, clipping at the sides and top to the required height being all that it gets here. For bedding, unless high, it does not answer, since it does not succeed with pegging. Anyone can fancy the beauty of such a mass rising up from the Grass 6 feet, and covered with great loose clusters of crimson, ever expanding. It propagates as easily as the Currant or Gooseberry.

Evergreen Wall Plants.—I do not think that "M. G. T." (see p. 368) will have much difficulty in selecting his quick growing evergreen creepers, as they are very limited in number. The best, undoubtedly, are the Banksian Roses, and of these I should prefer Jaune Serin and Fortunei, the former being superior in foliage to the old yellow, and the latter having flowers three times the size of the ordinary white sort. Ceanothus americanus, azureus, and dentatus are all good, but the first is the best on account of its distinct-looking foliage and white flowers. I do not know how many plants "M. G. T." requires, but Berberidopsis corallina, Physianthus albidus, Piptanthus nepalensis would do well on a south aspect, and are more uncommon than the others.—Berks.

—— The following are fast evergreen climbers, each of which bears sweet-scented flowers except the last, viz., Lonicera aurea reticulata, L. brachypoda, and L. flexuosa, Stauntonia latifolia, Akebia quinata, and Passiflora cœrulea—the fruit of the latter is very beautiful throughout the autumn, being the colour of Apricots.—John Garland, *Killerton, Exeter.*

Belle Lyonnaise Tea-scented Rose.—This nearly equals Maréchal Niel in usefulness. It has the habit of Gloire de Dijon, but is very superior to it in colour, being a deep canary-yellow. It is, in short, a first-class Rose for indoor culture. Budded on a Blairii No. 2 at a gable end of a large span-roofed Peach-house last autumn, it made immense growths some dozen or more feet in length, and this autumn it has flowered profusely, and is still yielding many very beautiful buds of yellow bloom. In fact, the characteristic of this Rose is, it seems, to bloom late, while Maréchal Niel prefers showing its beauty in spring. As an autumn-blooming creeper it may be strongly recommended.—Chevalier.

Colour of the Madresfield Court Grape.—If the roots of "J. S's." Madresfield Court Grape (p. 370) run into an outside border, he will find that the fruit will colour better if he places a wooden shutter over a border just as the fruit commences its second swelling, unless the roots have got into a damp subsoil.—James Smith, *Waterdale.*

Span-roofed Vineries.—My span-roofed Muscat and Alicante-houses are built east and west, and I find that they differ in no respect from those standing north and south; I keep the foliage, however, somewhat thinner on the northern side. I think, therefore, "Vitis" (p. 370) may with safety build his houses in a similar position.—James Smith, *Waterdale.*

Calceolaria Pavonia.—This is a very strong-growing species, growing from 2 to 3 feet in height, the large rugose, arrow-head-shaped leaves being dilated, connate, and stem-clasping at the base. The flowers are clear yellow on the outside, having a brown blotch inside, and are curiously curved like a slipper over the top. The style is protruded in a very curious manner. It grows well on a sunny wall, and is both distinct and attractive —B.

THE FLOWER GARDEN.

WALL GARDENING.

Wherever old retaining walls exist in gardens, they may, in nearly all cases, be much improved by the addition of any vegetation as will grow in such dry positions. Old garden walls are not unfrequently covered accidentally with Wallflowers, Snapdragons, Sedums, and Ferns, of which one, the common Wall Rue (Asplenium Ruta muraria), seems to do better in the crevices of old walls than anywhere else. The accompanying sketch, made a month or so ago, represents a bit of the old moat wall, at Kew, covered with Lythrum Salicaria, Achillea millifolia, the common Toad Flax (Linaria Cymbalaria), and many other plants, such as the yellow Lady's Bedstraw, wild Thyme, and various Grasses. Our wall gardening is generally confined to climbers, and, in many cases, these are not half so beautiful on walls as when allowed to drape trees and bushes; but, wherever old stone or decayed brick walls are found, real wall gardening may be carried out with but little trouble. Nearly all the Linarias grow on walls, as well, and, in many cases, even better, than elsewhere; so also will the low-growing Sedums and many Saxifrages. I have even seen Pansies not only growing well, but blooming freely on an old wall at Kew. The best way to establish plants on walls is by seed. The Cheddar Pink, for example, grows on walls at Oxford much better than I have ever known it to do on rock-work or on the level ground, in which last position indeed it soon dies. A few seeds of this plant, sown in a mossy or earthy chink, or even covered with a dust of fine soil, would soon take root and grow into neat little specimens, living, moreover, for years in that dwarf and perfectly healthful state so agreeable to the eye. So it is with most of the plants enumerated; the seedling roots vigorously into the chinks, and gets a hold which it rarely relaxes. But of some plants seeds are not to be had, and therefore it will be often necessary to use plants. In all cases young plants should be selected, and, as they will have been used to growing in fertile ground, or good soil in pots, and have all their little feeding roots compactly gathered up near the surface, they must be placed in a chink with a little moist soil, which will enable them to exist until they have struck root into the interstices of the wall. In this way I have seen several interesting species of Ferns established, and also the silvery Saxifrages, and can assure the reader that the appearance of the starry rosettes of these little rock plants (the kinds with incrusted leaves, like S. longifolia and S. lingulata) growing flat against the wall will prove strikingly beautiful. While many have old ruins and walls on which to grow Alpine plants, others may have no means of enjoying them in this way. By building a rough stone wall, and packing the openings as firmly as possible with loam and sandy peat, and putting, perhaps, a little mortar on the outside of the largest interstices, a host of brilliant gems may be grown with almost as little attention as we bestow on the common Ivy. Thoroughly consolidated the materials of the wall would afford precisely the kind of nutriment required by the plants. To many species the wall would prove a more congenial home than any but the best constructed rock-garden. In many parts of the country the rains would keep the walls in a sufficiently moist condition, the top being always left somewhat concave; in dry districts a perforated copper pipe laid along the top would diffuse the requisite moisture. In very moist places, natives of wet rocks, and trailing plants like the Linnæa, might be interspersed here and there among the other alpines; in dry ones it would be desirable to plant chiefly the Saxifrages, Sedums, small Campanulas, Linarias, and subjects that, even in hotter countries than ours, find a home on the sunniest and barest crags. The chief care in the management of a wall of alpine flowers would be in preventing weeds or coarse plants from taking root and overrunning the choice kinds. When these intruders are once observed, they can be easily prevented from making any further progress by continually cutting off their shoots as they appear; it would never be necessary to disturb the wall even in the case of a thriving Convolvulus. A wall of alpine plants may be placed in any convenient position in or near the garden; there is no reason why a portion of the walls usually devoted to climbers should not be prepared as I describe. Q.

Fosse Wall, with native plants.

LEPTOSIPHON ROSEUS.

Having read with pleasure Mr Thompson's interesting article on this plant (p. 343), I can fully endorse all that the writer has said in its favour. I have seen it growing by the thousand, and need hardly say that it produced a magnificent effect, forming, as it did, quite a carpet—the plants not growing more than 3 or 4 inches high—of lovely rose, inclining slightly to carmine, but more generally representing in colour the Rose François Michelon. It was figured in the "Florist" in 1870, by, I think, Macfarlane; but, as it is one of those beautiful soft, yet bright, colours that baffle the artist to portray, it looks a little dull. It is needless for me to give any instructions as regards cultivation, as Mr. Thompson has already imparted the necessary information; but I would urge upon intending cultivators to sow thinly, and not too deeply. I mention this because I am positive that hundreds of packets of seeds are annually buried in the ground, there to rot, to the sorrow of the sower, and to the surprise of the seedsman, who, in all probability, has raised a fine crop from the same bag of seed. I am sure that if anyone will vouchsafe to it the small amount of attention required by this lovely plant, he will be well repaid for his trouble; more than this, I will venture to predict, if he be a true plant lover, he will make up his mind to give many annuals and perennials a trial, which before he thought unworthy of notice. With this end in view, I will add a few more, which will amply repay the trouble bestowed upon them. They are all easily raised from seed, and are all of Mr. Thompson's own introduction. Abronia arenaria, Aquilegia cœrulea, Aubrietia græca, Collinsia verna (this must be sown in autumn, as it will not vegetate in spring), Delphinium nudicaule, Eriogonum umbellatum, Godetia Whitneyi, Lathyrus Sibthorpii, Modiola geranioides, Palafoxia Hookeriana, Pentstemon barbatus Torreyi, P. Fendleri, P. glaber, P. speciosus, Rhodanthe maculata, R. alba, and R. atrosanguinea. William Godbold.

Colchester.

Phygelius capensis as a Wall Plant.—This is one of the best of all late flowering sub-shrubby plants for a warm sunny wall. It grows from 7 to 8 feet in height. Its stems are clothed with dark green ovate leaves, each lateral shoot being terminated by a large panicle of drooping Gesnera-like crimson-scarlet flowers, about 1½ inch in length. Grown to a small size in pots, it would form one of the most useful and effective of all autumn and winter decorative plants, and would rival even Euphorbia fulgens in colour.—B.

BELLADONNA LILIES.

Eight or ten years ago I purchased a number of bulbs of this really handsome Lily from Mr. Charles Saunders, of St. Saviour's, Jersey, a portion of which were potted in the same way as Lilium japonicum would be; the rest were planted in one row 6 inches deep, in rich soil, and 6 inches apart, close to a south wall of a hothouse. Those in pots I could not induce to bloom, probably from neglecting to water them when they were growing, but the bulbs that were planted near the wall made some progress the following year, and produced a few blooms. As they gathered strength, the bulbs, and, consequently, the blooms, increased in size, and are now a fine sight. In a few weeks they will begin to make new growth, and this must be protected from frost by a thin board reared against the wall. In spring the foliage will grow rapidly and attain a height of 15 or 18 inches, finally ripening and dying by the end of the summer. During May and June occasionally soak them with liquid manure. We all know, or ought to know, that except strong, healthy, and well-matured foliage is produced, it is in vain to look for satisfactory flowers or fruit. The present is the best time to plant these Lilies, and they may be purchased from all seedsmen who sell collections of bulbs. I am informed the supply is somewhat limited; therefore, I should advise all who care to attempt their cultivation to make their purchases at once. The bulbs must remain where planted for many years, if a fine display of bloom is desired.

Sale, Cheshire. RICHARD S. YATES.

TREE AND OTHER PEONIES.

Peonies, with their crimson, pink, white, and other coloured flowers produced during a great part of the months of May and June, were long great favourites in gardens, although they are now somewhat neglected—probably owing to the fact that they are so large that, in small gardens, they would occupy too much room. There are, however, generally to be found, even in gardens of limited size, spots so much shaded that scarcely any flower will thrive in them. In such places Peonies would grow luxuriantly; the colour of their blooms would, in many cases, be even more intense, and they would last much longer than flowers fully exposed to the sun. They may, therefore, be made useful as well as ornamental, even in small pleasure grounds, although the proper place for them is undoubtedly the fronts of large shrubberies, plantations, or by the sides of carriage drives. Where distant effect is required, no plants so admirably answer the end, as their size and brilliancy render them strikingly visible even at long distances off. Planted in straight lines on either side of a Grass walk, the effect which they produce is admirable, especially in the morning and at or near sunset, and when planted in masses, as, for instance, in beds in pleasure grounds, they are invaluable for lighting up sombre nooks. Peonies grow best in light, sandy loam, and need but little attention, digging round and manuring in the winter, and some care in tying them up neatly in spring, being all they require. They may be readily increased, but it is most injurious to divide the roots too often, as, in that case, the constitution of the plants is weakened, and they generally take some time to recover their usual vigour; nor should they be dug up and removed too frequently, as this checks their growth for a season at least. Among the older forms, the best are P. officinalis rubra, rich deep purplish-crimson; officinalis rubescens, double bright ruby, and very fine; and edulis or albiflora, another original species, of which there are several fine varieties. Of newer varieties, the following are worthy of attention:—alba superba, Auguste Van Veert, centifolia rosea, Charles Binder, Duc Decazes, Eugène Verdier, Gloire de Douai, Jeanne d'Arc, lilacina, Madame Margottin, Madonna, Mrs. Hartnell, Prince Charles, pulcherrima, purpurea, the Queen, and tricolor plena. Some of these are of great size and beauty. Turning to tree Peonies, or Moutans, we come to a most important group of plants from an ornamental point of view. They form, as is well known, robust, early spring-flowering shrubs, varying from 2 to 4 and 5 feet in height, and bearing blossoms of extraordinary size, brilliancy, and beauty. They succeed well in all ordinary garden soils, exclusive of peat, unless found upon a deep dry sub-stratum. Blooming as they do early in the year, they occasionally require some slight protection to preserve the blossom buds from late frosts. I have seen them used with good effect on Grass plots. They have a fine appearance in a mixed border of shrubs. Their blossoms are of various shades of colour, from paper-whiteness to the most brilliant crimson and purple shades, and the plants are of such free-blooming habit that they become literally covered with their immense blooms during the summer months. They may be transplanted either in autumn or in spring before they make their growth. They are propagated by root-division, by grafting on the roots of the herbaceous varieties, by taking cuttings from the young shoots in spring and striking them under glass in a little heat, and by layering young shoots after ringing round each bud, so that each bud forms a plant. Of Moutans some of the best varieties are alba grandiflora, atro-purpurea, carnea plena, lactea, lilacina ocellata, papaveracea, and the white and red double forms; purpurea, Robert Fortune, Rollissoni, Rosa Mundi, Triomphe de Gand, Triomphe de Malines, versicolor plena, violacea purpurea, and Zenobia. R. D.

THE GARLAND FLOWER.

(HEDYCHIUM GARDNERIANUM.)

Not only is this plant one of the best for conservatory decoration, when planted out as recently advised by Mr. Groom, of Henham (p. 355), but it is also one of the most effective in sub-tropical gardening, or for planting in spare open spaces, among low-growing shrubs, and at the back of herbaceous or shrubbery borders. In such positions it breaks and relieves the monotonous uniformity that often prevails when the plants employed resemble each other too closely in habit or growth. The Hedychium has a boldness and distinctness of character that render it peculiarly fitted for situations of this kind, and is not only attractive itself, but helps to show off to great advantage other plants with which it may be associated. Many of the plants now in use in sub-tropical gardens are exceedingly tender, and the comparative hardiness of the Hedychium renders it doubly valuable for purposes of out-door decoration, as it continues in great beauty long after most other subjects are cut down and destroyed. Like the generality of large-leaved plants of rapid growth, the Hedychium is a gross feeder, and, therefore, the beds intended for its reception should be heavily manured. If it is intended to use single plants in different positions among shrubs or in borders, the best way is to dig holes 2 or 3 feet deep, and as much in width, at the bottom of which the manure should be well incorporated with the soil. This will afford plenty of depth for the roots to ramble in during dry weather, and will save labour in watering. If in positions where a good mulching can be given without its appearance being objectionable, or where the surface of the ground is but little seen, as is the case among shrubs, a good dressing of half-rotten manure should be laid round the plants, after which they may with safety be left to themselves for the rest of the season. I have known several instances of the Hedychium living out of doors in the open ground during very severe winters, with only very slight protection in the form of a few half-rotten leaves shaken over the crown. To be on the safe side, however, it is best to take up a portion of the plants and winter them in some cool, dry place until spring, when they may be divided and started for re-planting where they are required. J. SHEPPARD.

Evergreen Wall Plants.—"M. G. T.," Shropshire, might plant the following for covering his red brick house in addition to those plants he names:—Garrya elliptica, Desfontainea spinosa, Clethra arborea (Lily of the Valley tree), one or two Laurustinuses, and Photinia dentata. The Laurustinus, especially, makes a handsome wall plant, flowering freely nearly all the winter, and when planted in good soil grows rapidly; in the meantime, to cover the top until the evergreens get up, he might plant one or two Maréchal Niel Roses, budded or grafted on the Briar, and two or three plants of hybrid Clematis of the Jackmani and lanuginosa sections. He can, if he likes, when the evergreens grow up, remove the Roses and Clematis, but the chances are that when he sees the effect he will not do so.—E. HOBDAY, *Ramsey Abbey.*

—— "M. G. T." should plant against his house Escallonia macrantha, which is one of the finest of all evergreen wall plants. It is of quick growth, young plants often making shoots 3 or 4 feet in length in one season. Some of the Ceanothuses are also very useful, as C. dentatus, C. divaricatus, and C. rigidus. They should have a little protection during very hard frost. Euonymus radicans variegatus is likewise a beautiful wall plant of moderate growth, and one which is well adapted for a low wall or where space is limited, though if planted in rich moist soil it will speedily cover a large surface.—E. B.

A Crimson Water Lily.—There is a very beautiful hardy water plant, which, so far as we know, says the "Gardeners' Chronicle," is not in cultivation in this country, although it is superior to any of our hardy aquatics! It is a rich crimson-purple variety of Nymphæa alba, and grows wild in some parts of Sweden. The specimen we have seen is a dried one, in Fries' "Herbarium Normale," which had retained its colour almost undimmed. As spread out in the dried state, the flowers are upwards of 6 inches in diameter. Dr. Trimen informs us that he saw it growing in the botanic garden at Lund a few years ago.

Yuccas and Sedum Fabarium.—Having on my lawn a bed of Yuccas which could not be planted very near together, I was anxious to fill up between with a suitable plant; but could not for some time decide what this should be. Ordinary bedding plants would be out of the question, and although the variegated Ivies have been recommended for this purpose, I objected to them as taking too much out of the soil. I, therefore, at the end of April took off some shoots from my old plants of Sedum Fabarium, which were then about 4 inches in length, and studded them all over the bed about 6 inches apart. The combination has been much admired all the season, but now the Sedum is in bloom it is a most distinct and handsome bed.—Berks.

Winter Propagation of Flowering Plants.—Many plants are better propagated in winter than at any other time. For years past I have planted all my Pansy cuttings in November. Hardy Fuchsias, Carnations, and Picotees will all, or nearly all, root, if treated thus. I have also seen a house full of Tea Roses, all of which were raised in the same way, scarcely one having failed. Calceolarias, of course, should be always so treated, the advantage of this system being that you have merely to prick them out thickly in a frame, and leave them alone until spring, no attention whatever being required in an ordinary way. Hand-glasses also serve the purpose very well. Nothing, of course, that is really tender will endure this treatment, but it is astonishing what an immense number of plants may be successfully raised thus. The frame should be kept close until spring, and there is no necessity for sheltering with nets.—A. Dawson.

Scentless Roses.—My two lists (see p. 292) of scented and scentless Roses were made in July last, when my Roses were in full bloom; and I was very particular in selecting the scented from the scentless. My list of scented varieties is doubtless incomplete, inasmuch as I could only name such kinds as actually came under my own observation. Anna Alexieff, I beg to assure "Salmoniceps," (p. 328) was much scented in July, when, as I have said, my notes were made; but it has lost its scent since the beginning of October, the low temperature having destroyed the perfume of many varieties which in June and July were highly scented. My list of scentless Roses was made during the hot month of July; and it is strictly true that none of the varieties there mentioned possessed fragrance in the slightest degree.—Henry Taylor, *Fencote, near Bedale.*

The Chiswick Trial Pelargoniums.—The under-mentioned bedding Pelargoniums have this season been awarded first-class certificates as bedding plants at the Chiswick trials:—Tyersall Rival, scarlet; Rosa Little, scarlet; Harry King, scarlet; Caxton, violet-crimson; Mark Twain, scarlet; Colonel Wright, light scarlet; Mrs. J. George, pale scarlet; Mrs. Augusta Miles, deep pink; Lady Emily, bright deep pink; Mrs. Holden, bright pink; and General Outram, dark scarlet. In the gold and bronze section, Golden Harry Hieover, W. E. Gumbleton, and Rev. C. P. Peach, were also awarded first-class certificates, as were Gem of the Season and Argus amongst the Ivy-leaved sorts.

Lifting and Storing Dahlia Roots.—Now, when the beauty of our Dahlias is all but over, a few words on this subject may not be unacceptable. There are many different ways of storing Dahlias. The best I know is to select a thoroughly dry day for lifting the roots, and then to carefully cut the top off about 1½ inch, or at the most 2 inches, from the ground, the very best instrument wherewith to effect this being a sharp pruning knife. The roots should then be laid on any old stages that may be useless in the houses; or, failing these, on a few boughs, which, if placed so that the air can pass freely between them, would answer the purpose equally well. A pointed stick may be used to pick out the soil from between the roots, which the operator must be careful not to injure. Rather than run the risk of this, it is better to let a small portion of the soil adhere to them. If the weather is fine, the roots might lay out of doors for two or three days, care being taken to cover them at night; but, if rain appears likely to fall, it would be best to take them into a shed, or inside the border of a Vinery, at the back or under the stage of which they are not noticeable, and where the ventilation that is required to keep the other things healthy in the house will also prevent the Dahlia roots from damping. In case of a new variety, or one that is weak, it would be advisable to lift and pot it, placing it in a dry place with the others. Different growers have different methods of storing, such, for example, as laying the roots in a shed, and covering them with straw, ashes, and sand. In some instances, each variety is tied up separately in old pieces of fish netting, or matting, and suspended to the walls or roof of a warm shed. By such dry modes of storing, the tubers become very shrivelled, and are much injured; but, in the method I have described, the only objection is the somewhat untidy appearance that it gives to the house.—H. G. Wright, *Ingham, Bury St. Edmunds.*

New Cannas.—Mr. George Such, of South Amboy, asked in the spring if I would try a set of his new Cannas; of course I am always ready to try any new thing, and accepted them. My former experience with new Cannas had not shown them to be superior to the older sorts, and I hesitated about giving these new comers the post of honour; however, in deference to Mr. Such, the new comers had the bed on the lawn, and the old ones were placed in the back-ground. That bed is just now splendid; we had obtained quite as perfect foliage before, but these, while they are equal to the older kinds in the luxuriance and colour of their leaves, flower with an abundance and brilliancy of which I did not suppose the Canna capable. Prince Imperial, Gloire de Lyons, and others are intense in their scarlet and crimson, and there are fine orange and salmon-coloured ones. Imperator, fortunately placed in the centre of the bed, is now 8 feet high, and increases daily.—"American Agriculturist." [In our climate we never can enjoy these fine plants as those do who have warmer summers than ours, but they are, nevertheless, worthy of much attention in the southern counties, and these showy-blossomed kinds would also seem to be worthy of culture for the greenhouse and conservatory.]

Virginian Poke (Phytolacca decandra).—This is an exceedingly ornamental plant, and very suitable for the back of the herbaceous border, or for growing in spare open spaces amongst shrubs. It has been a striking object with us in the latter position for several years past, and has stood the severity of the winters with only slight protection in the form of a little mulching thrown over the roots. The plant is herbaceous, and has immense fleshy roots that penetrate deeply into the earth in search of food, thus rendering it independent of the weather, as regards moisture, and of easy cultivation. Early in spring it sends up from its crown several stout shoots that soon run to the height of 4 or 5 feet, when they divide into numerous branches. These send forth numerous bunches of flower, greatly resembling those of the Currant, and when these are set and ripe the plant has a very striking appearance, on account of their great profusion and rich colour. The berries, which are of a bluish-black colour, are about the size of a Pea, but are rugged and furrowed, and generally contain ten or twelve seeds. These should be sown early in the spring in light soil, and when up and large enough to handle may at once be transferred to the positions intended for them. Should the soil be at all rich, they must be allowed plenty of room, or they will soon overgrow anything that may be standing near. Although the plant will not attain so large a size in poor soil, it will be found to fruit more freely. Grown as a pot plant, it is valuable for winter decoration in large conservatories. The juice of the berries is of a rich purple colour, and the Portuguese have the credit of using it to give a high colour to their port wine.—J. Sheppard, *Woolverstone.*

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Oxalis Deppei, Bowiei, and elegans.—No autumnal garden ought to be without these three pretty red-flowered Wood Sorrels. They are all still in full bloom, and would go on till Christmas if the frost would let them.—H. Harpur Crewe, *Drayton-Beauchamp Rectory, Tring.*

Begonia Martiana.—In spite of weeks of cold drenching rain, and almost sunless days, this pretty Begonia still continues fresh and gay in the open border. I have great hopes that, with the help of a little cocoa-nut refuse, I may be able to keep it through the winter.—H. Harpur Crewe.

Leucophyta Brownei.—This is a silvery-foliaged plant of wiry habit, and is, I think, destined to become very popular for parterre work. Though classed with greenhouse plants in some lists, it is quite hardy here. I should be glad if some one would give its history and date of introduction.—W. Wildsmith, *Heckfield, Hants.*

Calceolaria Pavonia.—This fine species has been in full bloom with me for the last three months, and is still, in spite of the weather, comparatively uninjured. It is planted in a shady corner against a north wall, at the back of a large clump of Polygonum Sieboldii. It grows 3 or 4 feet high, and has large pale yellow flowers.—H. Harpur Crewe.

Hardy Maiden-hair Ferns.—Mr. Sim (see p. 367) states that Adiantum pedatum is the only hardy Maiden-hair Fern, without specifying localities (as in the case of the Woodwardias). Is not this an oversight? He surely has forgotten A. capillus-veneris at St. Ives in Cornwall and other places. Woodwardias, in very sheltered nooks, do stand out in Cornwall; but they are often killed by frost. The crowns should be protected in winter by a covering of leaves.—H. Mills, *Enys, Penryn.*

Seedling Lobelias.—I was surprised to learn from Mr. Westland's article (see p. 342) that Lobelias are not included among the plants for trial in the Royal Horticultural Society's grounds at Chiswick. I was under the impression that all new flowers and vegetables were admitted for trial, and this spring I forwarded a dozen plants of a Viola, and an equal number of plants of a seedling Lobelia, which has been pronounced by all gardeners who have seen it this season to be of great merit, and far superior to any other variety they have seen.—R. Miller, *Milton, Stoke-on-Trent.*

THE LIBRARY.

"NEBRASKA."*

Emigration has been rightly termed "the safety-valve of nations." In more than one notable instance the spontaneous exodus of a large number of the labouring population has, without doubt, been the means of averting, not only a large amount of want and distress, but catastrophes of even a higher import, that have threatened to overwhelm the State. Amongst those portions of the globe that have served as an outlet for an underpaid or wholly unemployed population, North America, from its colonisation by the Puritans of the seventeenth century to the present day, has admittedly stood foremost both on account of its soil, climate, and enormous mineral resources, and the practically unlimited extent of the territory which waits to be subdued at the hands of man. Extraordinary as is the progress made during the last quarter of a century in our Australian colonies, it scarcely bears comparison with the rapid march of civilisation that has taken place during the last three decades in the western states of the American Union, and this extraordinary development has, it must be remembered, for the most part taken place in a country where the discovery of gold has not as yet lent its all powerful aid in attracting a population, and where the cultivation of the soil has been the chief industry of the community. Nebraska, amongst the most recently settled states, is an extraordinary example of this, and, in the work under notice, this is shown in a thoroughly practical manner. The author, who knows the small value of the multitudinous hand-books yearly sent forth by speculative companies and shipping firms, has compiled a valuable history of the state, and in numerous statistical tables shows that he bases his favourable opinion of the country on a better foundation than the interested assertions of adventurers. Added to this, his own observation has been most extensive and intelligent, and the result has been that a book has been given to us that will be read with pleasure by all, and with profit by those who contemplate moving their homes to a new colony. The chapters devoted to wild Plums and Cherries are peculiarly interesting from a horticultural point of view, and from them we make the following extracts:

Plums.

There are three type species of Plums in the state namely, Prunus americana, P. chicasa, and P. pumila. Of these there is an almost endless number of varieties. In a Plum thicket in Dakota County, covering only a few acres, I counted, while in fruit, nineteen varieties of Prunus americana and P. chicasa, varying in size from ¼ to 1¼ inch in diameter, and in colour from almost white and salmon, to many shades of yellow, tinged with green and red, and from a light, dark, and scarlet-red, to purple tinged with different shades of yellow. Such instances are frequent over most portions of the state, the Plums being common in almost every county, especially along the water courses, and bordering the belts of timber. These Plum groves in spring time present a vast sea of flowers whose fragrance is wafted for miles, and whose beauty attracts every eye. The varieties of the Prunus americana have oval or obovate leaves (broader at the tip than where the stem is attached), with saw-toothed or doubly saw-toothed edges and very full of veins. The fruit is globular or oval and ranges from ⅓ to 1¼ inch in diameter, the latter being an exceptionally large size. The colour is all shades of yellow, with some red and crimson. Its juice is pleasant, but its skin is tough and acerb, and its stone is sharp edged or margined. The shrub varies in height from 6 to 25 feet. The fruit ripens in August and the first half of September. These are the prevailing characters, but they vary greatly, some of the varieties producing fruit which is a great improvement in size and taste on the type species, while others again have deteriorated. Nearly all the varieties appear to part very readily from the stone. Still more subject to change is the Prunus chicasa, which grows from 4 to 12 feet in height, sometimes thorny, and always with long, narrow, almost lance-shaped, acute leaves, whose edges are set with very fine teeth. The fruit is globular, of all shades of red, and from ½ to 1 inch or more in diameter, of pleasant (some varieties, of delicious) flavour, thin skinned, and containing an almost round and entirely marginless stone, Most of the varieties of this Plum do not part readily from the stone. The fruit ripens the latter part of July and in August. I have found many forms that cannot be readily classed with either of these species, but seem to be a cross between the two. In fact these Plums often hybridise. This is not strange where both species often grow together in such compact thickets that it is difficult to penetrate them. When the pollen of the one is carried to the pistils of the other species the young plants that come from the seeds must exhibit some characters which are common to both. One variety of the Prunus americana, that grows from 6 to 10 feet in height, and has greenish-white fruit, occasionally tinged with yellow, rarely ripens its fruit. I have seen its fruit hard and green towards the end of October; but when plucked and stowed away in an empty room, it even then readily ripens, like Pears when similarly treated. Occasionally a tree is found producing a little round red Plum, slightly larger than a Morello Cherry, which bears double fruit. Delicious as some of these wild Plums are, their size and flavour are much improved by cultivation and pruning. It is easy to produce an early and fruitful grove of these Plums from the seed. A tree grown in my former grounds in Dakota City yielded thirty-nine blossoms the second year from the seed, and 790 the third year. It is also found that these wild Plums are magnificent stock on which to graft the Peach, other varieties of Plums, and the Apricot. Their great hardiness, and the readiness with which they unite with the old cultivated Plums, makes them invaluable to those who raise such fruits, Alas! there is one drawback to this picture. The everlasting enemy of the Plum, the Curculio, is also present. The young fruit sets each year by the million, but some of the finest groves are sometimes, for years in succession, prevented by this cause from bearing much fruit. Yet so great is the vitality of the Plum family in this state that some varieties will succeed even in spite of the Curculio. One such grove I found years ago along the bluffs south-west of Dakota City. The trees were laden with fruit even when all the other groves in the neighbourhood were almost entirely shorn of their treasures.

Cherries.

The dwarf or sand-hill Cherry, so famous on our western plains, is really botanically a dwarf Plum, Prunus pumila—and therefore we speak of it last. The stem is smooth, depressed, trailing or semi-erect, from 8 to 24 inches high. The leaves are obovate lanceolate, tapering to the base, sometimes a little toothed towards the apex, and pale underneath; the flowers numerous, two to four in a cluster. The fruit varies greatly, but is generally about half an inch long and three-eighths broad, ovoid, dark purple, brown-purple, brown-reddish, or nearly black, generally sweet, sometimes delicious, and occasionally almost insipid. It is enormously productive. The shrub has a spreading habit, forming dense masses, sometimes covering from 30 to 60 square feet of ground, but usually the tufts are not more than from 15 to 25 feet in area. It suckers abundantly from the roots, and is propagated in this way as well as by seeds. It is found over the greater part of the western half of the state, and while it is not excluded from the richest soil if dry, it seems to be partial to sandy localities, rich in alkaline earths. As this Plum is nearly related to some of our cultivated varieties of Cherries, and the stamens and pistils of the flowers are large in both, it will require no great skill to produce a cross between them. And as has been remarked, a cross between the dwarf Plum and a Bigarreau or Morello variety, retaining the dwarf habit, vigour, and productiveness of the former, with the flavour of the latter, would be an acquisition of incalculable value, and would completely revolutionise Cherry culture. However this may be, the best varieties of the dwarf Cherry are valuable as they come from the hand of Nature. Many an explorer and traveller in the unsettled regions has been refreshed by them, and the day is not distant when this fruit will, as it deserves, have a place in the gardens of all the people. Three species of wild Cherries grow in various parts of the states. The wild red Cherry (Prunus pennsylvanica), grows sometimes to the dimensions of a small tree. Its leaves are oblong, lanceolate, pointed; margins, finely saw-toothed, green on both sides; flowers, on long stems; and the fruit of a light red colour, sour, very small and of little merit. The wild black Cherry (Prunus serotina), is valuable only for its wood, which is close grained, reddish or brownish, and highly esteemed by the cabinet maker for the fine polish of which it is capable. The lance-oblong, smooth leaves are taper pointed, glandular and saw-toothed. The flowers are produced in long clusters (racemes); its fruit is reddish or purplish-black, ripening in autumn. Though the fruit is not sought after by human beings, it is eagerly devoured by birds. The bark is a remarkable tonic. I have only noticed the tree in the south-eastern part of the state. The Choke Cherry (Prunus virginica), is a tall shrub with greyish bark, oval-oblong, or obovate and abruptly pointed thin leaves, very slender, sharp saw-toothed, and from 2 to 3 inches long. The fruit is very astringent to the taste, but rather agreeable.

In addition to these there are also wild Strawberries, Raspberries, Blackberries, Currants, Gooseberries, Grapes, Mulberries, Elderberries, Papaws, and Nuts.

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* "Nebraska." By Edwin W. Curley. Sampson Low London.

THE INDOOR GARDEN.

COOL CULTURE OF LASIANDRA MACRANTHA.

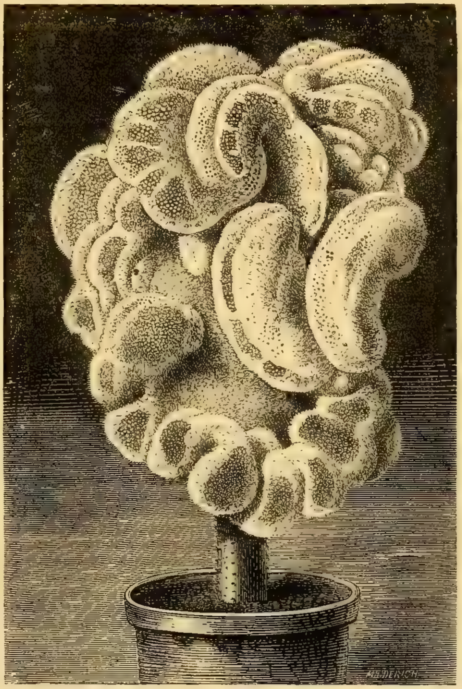
This handsome plant deserves to be grown more extensively than it is at present, as I find that it does very well in a greenhouse. It is usually grown as a stove plant, and this may account in some measure for its not being more frequently met with. Its culture is a matter of no difficulty whatever. It may be grown to any desired size, and may be had in flower six months out of the twelve—indeed, I had a plant of it in flower in the greenhouse last year from July to January. L. macrantha is of a somewhat straggling growth, but fine specimens may be formed by training, and, when well grown, are valuable additions to the exhibition table, where they are not often met with, as well as for home decoration, its trusses of lovely mauve flowers and fine large green foliage rendering it especially attractive as an autumn plant for exhibition or for the embellishment of the conservatory. The mode of cultivating it as a greenhouse plant is as follows:—In the spring, about the beginning of April, place a young healthy plant in a pot one or two sizes larger than that which it has occupied, according to the strength of the plant. The pots must be clean, and have a good drainage, the plants requiring plenty of water when in full growth. Put a thin layer of Moss or some other rough material over the crocks, to keep the drainage clean. Pot the plant firmly, and place it at the warmest end of the greenhouse, watering it carefully at first. By the middle of July it must be re-potted, treating it as before. When the plants get large, I only pot them once in the season, but give them a watering with weak liquid manure-water when the plant is well established in the pot. The soil I use is turfy-loam and peat in equal quantities, leaf mould, and one part of thoroughly-decayed manure, with a little charcoal, broken rather fine but not powdered, and enough sand to keep the whole open. I put a few straight stakes into the pots, and train the plants to them till they are moved into large pots, when they may be trained to their permanent trellis. Balloon or crinoline trellises suit the plants best; but, if these are not obtainable, a fine specimen may be made by using some straight iron or wooden stakes—the former are the best, as they do not rot—and training the plant into whatever shape is thought best. By following this mode of cultivation, I have obtained a plant of it, now in flower, which measures 3 feet through, and as much in height. What makes the plant more valuable is that it flowers all through the dull winter months, when flowers are scarce, and is not subject to insect pests. Thrips is the worst enemy it has; but this may be destroyed by fumigating. I have grown the L. macrantha floribunda, but think it far inferior to the original species. It does not flower so freely with me, and has not so good a colour. L. macrantha may easily be increased by cuttings, if they are taken off when the plant is growing and inserted in pots, in sand and peat, and plunged in a good bottom-heat till rooted.

J. C. S. W.

CRESTED FORM OF ECHINOPSIS SCOPA.

(ECHINOPSIS SCOPA CANDIDA CRISTATA.)

Although by nature, form, and aspect, Cacti are quite distinct from other flowering plants, they are nevertheless subject, like the latter, to the great universal law of mutation. Examples of dimorphism are as frequently met with amongst them as amongst other dicotyledons, and are often observed to make their appearance on different parts of the same plant. Our engraving represents a very remarkable instance of this in the Echinopsis scopa candida cristata, which is simply a monstrous form of the variety E. scopa. The latter forms a mass of regular oblong-shape, delicately rounded and furrowed. E. scopa candida cristata is, on the other hand, deformed in all its parts, and presents an irregular mass, which goes on increasing in bulk in all directions by the addition of fresh growths in the form of numerous excrescences, which appear to agglomerate without order and form a perfect labyrinth of tortuous windings. The furrows visible in E. scopa are entirely obliterated, but a kind of suture runs longitudinally through the upper parts of the excrescences. As regards the surface it is covered with tufts of stiff, snow-white hair, which is finer than that on the type. This crested form of E. scopa, is a curiosity both as regards its form and its colour. The specimen figured belonged to M. Butant, of Paris, who has devoted himself with much success to the cultivation of Cacti, and whose collection of these curious plants, the culture of which is by no means difficult, is remarkably beautiful and complete. Besides the crested variety which we have described, E. scopa has produced, by dimorphism, a variety which differs from the type only in its colour, which is whiter. This variety has on this account been appropriately called E. scopa nivea. In order to cultivate E. scopa candida cristata, says the "Revue Horticole," it should be grafted upon Cereus Baumanni—upon which M. Butant's specimen is grown—or on C. macrogonus, C. tetracanthus, and C. peruvianus; on its own stems it is of very slow growth.



A Crested Cactus.

GREENHOUSE CLIMBERS TO FLOWER AT CHRISTMAS.

If "Enquirer's" greenhouse (see p. 382) is light and warm, say from 45° to 50°, there will be no difficulty in having climbing plants to flower in it at Christmas; but, if the roof is densely covered with creepers, it will interfere with whatever is growing underneath, and in that way he may lose as much as he gains. However, there are many plants that may be trained thinly on the roof and yet give plants growing beneath a fair amount of light, and first and foremost may be mentioned Tropæolums of the small-leaved Lobbianum section, young plants of which turned out in spring and trained thinly over the roof during summer, will hang about and keep the house aglow with bright flowers throughout the winter. A few of the faster-growing Tea Roses might be planted along the front, and afterwards led here and there up the rafters. Habrothamnus elegans and fascicularis are capital plants for walls, pillars, or for training up the rafters. Some Fuchsias, again, when pruned back early in August, if planted out in a good border, flower splendidly in winter. Dominiana, Carolina, Venus de Medici, and an old double variety called grandiflora plena, I have seen do splendidly when treated thus. I have also seen some of the stronger growing scarlet Geraniums, such as the old Giant and others, planted out in a well drained border and trained up to the roof, flower better in winter than summer, because the trusses lasted so much longer. It is astonishing what a time a truss of scarlet Geranium will keep in good condition in a light well-ventilated house, and, of course, in winter there must be a fair amount of artificial heat to admit of the necessary ventilation if the flowers are to be kept in good condition. Heliotropes may be shortened back and treated the same as Fuchsias, for winter flowering. Luculia gratissima, if trained against the end or the back wall, will fill the house with its delicious fragrance in the months of December and January. Begonia fuchsioides looks exceedingly bright and pretty in the front of a warm greenhouse, trained up to the roof with a single stem, and then allowed to extend itself. Several of the Veronicas of the Andersoni section, in the same way, trained up the rafters, have a pretty effect. With a little care and management a greenhouse roof may be made to assume a very gay appearance in winter, without materially injuring plants beneath the climbers. Of course, with plants in flower, the watering pot must be used cautiously, so as to keep the atmosphere of the house nearly dry. E. HOBDAY.

STOCK FOR EPIPHYLLUMS.

MR. CROUCHER says (p. 375) that the fact of Pereskia aculeata growing during winter in a warm greenhouse is new to him, inasmuch as his practice has been to allow his plants to become dry, and to lose their leaves in winter. I cannot understand how he could expect his Epiphyllums grafted on these to continue growing or to blossom under such treatment; they would dry up on any plant at rest, whether Cereus speciosissimus or anything else, if they did not die outright. He also asks, "because a plant is in flower, are we obliged to water it, wet or dry?" Of course, if it be wet enough, we do not water it, but if it be dry, we must, or the leaves drop off, and finally the graft dies. He seems to consider the emission of aërial roots as a proof that the graft is starved by want of sap in the stock. This would be an additional reason for watering the stock at its root. If, on the contrary, he thinks Epiphyllums are epiphytes, drawing all their nourishment from the air, why, then, should they be grown in a stove, syringed every day, and treated like winter Orchids? Pereskia stands this perfectly, and the finest specimens I have seen were thus grown. But I must say that nothing in my long experience with the whole Cactus tribe would ever induce me to bestow much pains upon grafting on C. speciosissimus to be subjected to the above treatment. Some Cacti are certainly hardy enough. M. Rivière once kept an Echinopsis Eyriesii for a whole winter in a Hyacinth glass, and there is an Opuntia that grows wild, and is indigenous to the State of New York. But there can be no two opinions as to their season of rest—rest they must, like all other plants, have; and as they grow and blossom during summer do what you will, it stands to reason that winter is the season of rest in northern Europe. Although Pereskia aculeata is not from the same country as C. speciosissimus, the former being a West Indian and the latter from Mexico and Guatemala, yet I do not in the least pretend that the Pereskia also should not rest in winter, if we would cultivate and bloom it as a separate plant; I merely assert that in my experience it is the stock least liable to rot, if kept vegetating in a warm greenhouse, and, moreover, far more sightly than the generally deformed and otherwise ugly, C. speciosissimus. F. T. P.

Rubus rosæfolius.—A short time ago, you gave a figure of the single-flowered variety of this most desirable plant. The double-blossomed kind, of which I have just procured a small specimen, is even more beautiful. It appears at present to be rarely grown—I have only seen it twice—but no conservatory ought to be without it. I shall be very glad to know where I can get the single variety.—H. HARPUR CREWE, *Drayton-Beauchamp Rectory, Tring.*

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Spring Flowers.—Both Russian and Neapolitan Violets are especially suitable for frame culture; plants that have been prepared in the usual way by being planted out should now be placed in 6-inch pots, in ordinary loam, and the soil made tolerably firm. Hyacinths, of different colours, should be potted and treated as has been advised for greenhouse use. With these may be included Scilla bifolia, S. hyacinthoides, and S. sibirica, charming little plants that will flower beautifully in pots. Some Lily of the Valley should also be prepared. It will come in several weeks earlier than in the open ground. The imported roots, as now sold in selected crowns, are the best; or, if the amateur happens to have plenty of this fragrant favourite growing, he may take some up forthwith, choosing the blooming crowns. These may be readily distinguished, by their thick plump buds, from the weaker ones, which should at once be re-planted in an open situation, in rich soil, to grow stronger for another season. A 6-inch pot will hold a dozen of these flowering crowns. A dry, sheltered, sunny situation should be selected, and, the warmer it is, the earlier will the plants flower, as every additional ray of sun in the spring is a gain to them when managed in this way. For this reason let the frame slope considerably to the south; and, to effect this, raise the ground at the back. On this place 8 or 10 inches of ashes, on which to stand the pots. Thus elevated on the dry material, the superfluous moisture from watering will drain off. Do not by any means lower the ground, for the loss that ensues through the inevitable accumulation of damp is much greater than the gain. Pack round the side and ends of the frame 18 inches of dry leaves, laying them up level with the top all round; on this place boards, made to overlap each other at the corners, and then nailed; let them fit with their inner edges close to the frame on all sides, and slope outwards a little, so as to throw off the wet. The lining of leaves, kept dry, will ward off a great deal of frost. As this lining settles during the winter, have in readiness more leaves to replenish it, and round the sides put 1 or 2 inches of litter, to prevent their being blown about, and drive down a few stakes, at intervals of 12 or 15 inches, to keep all in its place. Give more or less air, according to the temperature, on all days when it does not freeze. Use no more water than is necessary to keep the earth in the pots in a sufficiently moist condition, which may be best described as being between wet and dry, or so that it will not soil the fingers much when compressed in the hand. When there is an appearance of frost in the evenings, put mats over the glass, and secure them from the action of the wind by weighting them with pieces of board. Later on in the winter, place a foot of litter on the glass, over the mats, and a wooden shutter over all. This will keep the litter dry, and hold it in its place. From a large frame or frames filled with plants of this description, and managed in this way, amateurs may enjoy, through the early spring, a quantity of beautiful flowers; whereas, if they attempt to winter Pelargoniums, or similar tender greenhouse subjects that suffer through damp, they are almost certain of disappointment.

Primula japonica and P. cortusoides.—The soil in the pots in which these are grown should not be allowed to get saturated with water, as it not only is injurious to the roots, but renders the plants less able to stand the winter. The lights should be drawn off them every day when the weather is dry, and tilted when wet. For these and all subjects of a similar nature that are at this season in frames, nothing can possibly be worse than an insufficiency of air and light, as the one tends to keep them growing at a time when there should be no further development of foliage, and the other causes a weak sickly condition, calculated to make the leaves tender, and the flowers, when produced, puny. These plants are not nearly so much grown by amateurs as they deserve to be, yet nothing could be more suitable, as they are easily managed, flower in the greenhouse during the spring without much trouble, and are quite as beautiful as many things more sought after, but inferior to them. It is always more satisfactory to grow such plants, the means at command, in the shape of houses, pits, or frames, being adapted for them, than to attempt others that are less likely to succeed. There are numbers of amateurs who possess no means of protecting plants through the winter, except cold frames. By careful attention a great deal of frost may be excluded from these, as this is nothing more than a question of sufficient covering materials; but the attempt should never be made to winter anything in such places that is liable to suffer from being kept closed up, perhaps for weeks together, should protracted frost render it necessary. There are many very beautiful subjects that may be so kept, and that will furnish the material for many a vase of flowers, that are not to be despised, even by those who have the appliances of heated stoves and greenhouses. To the Primula japonica above alluded to, and the different coloured P. cortusoides, may be added Pansies in pots, which are particularly adapted for being used in this way, and if an assortment of the different colours are now potted—three or four autumn-struck plants to a 6-inch pot—they will begin to flower early, and continue to do so through the spring. These should be grown in sandy loam, to which may be added one part rotten dung, and one part leaf mould to three parts loam, and a little sand.

Parsley, Endive, and Lettuce.—A plentiful supply of Parsley, which throughout the winter is very desirable, may be secured, if the necessary measures be at once adopted. Weak, poorly-grown plants that have been sown in a bed or in rows, and allowed to remain crowded too closely—an error too frequently committed—can never be depended on to produce much after winter fairly sets in, and when the plants are making the least growth; subjected to such treatment as this, the roots are often so much affected with canker that they have little vitality in them. If, as was recommended at the time of sowing the crop of spring Onions, a pinch of Parsley seed was put in at intervals over a portion of the ground occupied, and afterwards thinned out to single plants, they will, at the present time, be stout and strong, probably nearly a foot each in diameter. They should now be planted sufficiently close together, but without crowding; the leaves of each root ought, in fact, just to meet, as, in this way, they can be protected. An ordinary garden frame is the best; the lights being taken off except during severe frost or when there is a likelihood of snow. If a frame with glazed lights cannot be spared, a temporary one, made of boards, such as has been described for hardening off bedding plants in the spring, should be used. It should have strips of wood nailed over it, so as to allow of mats or shutters being placed on in severe weather. In planting in this way, holes should be made that will admit of each root being placed in the soil with its roots intact in a good spadeful of earth, and, treated in this way, they will not feel the effects of shifting. Endive and Lettuce that have already grown to a usable size should be treated in a similar way. The plants may be placed moderately close one to the other—much nearer than those of Parsley. Here, again, frames with glass lights are the best; but, if they are not vacant, recourse must be had to covering with mats and dry Fern. Nothing is so good as the latter, as from its light open nature, it may, in severe frost, be placed absolutely in contact with whatever it is required to protect; mats, on the other hand, or straw when wet, are heavy and lie so close that when frozen and touching the plants, they often do as much harm as good. A good method of blanching, and at the same time of protecting Endive, is to use boards 10 inches or a foot wide, and ½ or ¾ inch thick, in lengths of from 6 to 10 or 12 feet, according to the length of the rows to be covered. These should be laid flat on the top of the Endive, a dry day being chosen when the plants are free from wet. Place a couple of bricks on each board to prevent their being moved by strong winds; this will also keep the boards in contact with the plants so as to exclude light, and hasten the blanching process; it will thus become white in eighteen or twenty days after the boards are put over it. More should not be covered at a time than will be used in a month or five weeks, or it may rot. The boards so placed will exclude a good deal of frost, from which the Endive can be still further protected by a covering of stable litter, Fern, or Asparagus haulm; the latter is very useful for protective purposes of this kind, as it does not lie too close. Amateurs are often deterred from attempting to grow salads so as to have a supply continuously through the winter, by the impression that its culture is only possible in large gardens, with skilful management and costly appliances; yet such is by no means the case. The first essential is to make through the latter part of the summer and autumn a sufficient number of sowings to fill up blanks caused by failure, and to give the plants proper attention afterwards, as from time to time advised for amateur gardens; it will then be found that, by promptitude in the different necessary operations, and by ordinary, inexpensive means, salad and other vegetables in season may be had without interruption, except in the severest winters.

Asparagus.—Tops of this will now have turned yellow, and should be removed; but, as in other cases of a similar nature, they ought never to be cut away whilst they have life in them. If there are any weeds on the beds, they should be cleared away. The beds should then have their winter dressing applied. This ought to consist of 3 inches of well-rotten dung evenly spread over the surface. This not only has the effect of enriching the soil, by its fertilising properties being washed into the ground by the rains, but it also protects the crowns from frost; for, although a perfectly hardy plant, yet, like many others under a system of cultivation, it is better not to have the roots exposed to severe frost. If the alleys contain plenty of soil, an inch or two may be thrown over the dung; but the old method of sinking these too deep frequently did much injury to the roots, which grow persistently in a horizontal direction, often extending into the alleys, and, when these were cut to such a depth as to throw a considerable portion of soil over the beds, the roots, of course, were more or less injured. The great mistake in the cultivation of this vegetable is in too close planting; two rows are quite enough for a 4-foot bed, instead of three or four. There is nothing gained by close planting; when plenty of room is allowed, the heads, if they are not so numerous, are double the size, and the beds will last much longer.

Frames.—Cucumber and Melon frames should now be moved from the beds, and the glass well washed preparatory to their being used for the protection of plants that may require it through the winter. Any broken glass should be repaired; and if the wood-work is well dried, and afterwards painted, they will be all the better able to keep out wet, and will be preserved.

The Flower Garden and Pleasure Grounds.

In all cases, where a system of spring bedding is practised, the beds and borders will now be again furnished, and little will for some time be required to be done in this department further than keeping everything connected with it in as good order as possible. Fallen leaves, worm casts, and littery matter of any kind, should be frequently swept up and removed from the turf and gravel walks. The surface of the beds should be occasionally refreshed and kept free from weeds. On the herbaceous border the Sternbergia lutea is already in full flower, together with border Chysanthemums of various sorts, to which—at least to the latter—should the weather become severe, it will be necessary to give a slight protection. When the gravel used for the walks is of a somewhat loamy nature the surface is not unlikely to become, at this season, covered with green Moss. This is still more likely to be the case where such walks are more or less shaded with trees. It may now, however, be easily removed or scraped off with a flat hoe, and this will give to the walks a clean and fresh appearance until the return of spring, when it is generally advisable to loosen the surface, give a fresh coat of gravel, and again roll it well down. Wherever alterations of any description in the grounds are contemplated, which will necessitate the removal or transplanting of trees or shrubs, the relaying of turf, &c., the work should now be proceeded with as rapidly as possible whilst the weather is favourable for such operations. The rain which has lately fallen has perhaps made heavy soils more moist than is desirable for the prosecution of this description of work, but it may, nevertheless, in most cases, be proceeded with; on light land the soil will now be in a very suitable condition for the purpose. In transplanting trees and shrubs of considerable dimensions, let them, as soon as planted, be securely staked whenever this is found to be necessary, and a basin should be formed round the stems of the plants, into which should be dashed a considerable quantity of water. This should generally be done even in cases where the soil may be already in a sufficiently moist condition, as it tends to fill up all interstices, and to consolidate the soil among the roots and fibres. Soon after the water has been absorbed, the sides of the basin should be levelled in, and the soil should be trodden down moderately firm, a good mulching of littery manure being placed over the soil surrounding the plants. This will, to some extent, prevent the frost from penetrating the soil, and will, at the same time, keep it in a friable and healthy condition.—P. GRIEVE, *Culford, Bury St. Edmunds.*

Orchids.

This being the dullest month in the whole year, every precaution must be taken in supplying the different houses with heat and moisture, and any Orchids that are completing their growth should be placed as near the glass as possible without injuring them. Plants which are still growing freely, and which require watering regularly, should be more freely supplied on bright days than on such as are sunless, and they should have a night temperature of 65°, and a day temperature of 75°. In the Cattleya-house no more moisture should be given than is sufficient to counteract the atmospheric heat. The greater portion of these plants will have completed growth, and any that are still growing should have the warmest end of the house, a night temperature of 60°, and a day temperature of 65°. Until Lycaste Skinneri has completed growth, which will be the case before long, it should receive abundance of water, a night temperature of 55° and a day temperature of 60°. This is one of the most useful Orchids for winter and spring decoration. Calanthe Veitchii, C. vestita, Cypripedium insigne, C. venustum, Sophronitis grandiflora, Odontoglossum pulchellum, O. Rossii, O. Hallii, O. Pescatorei, O. Bluntii, O. cordatum, Oncidium Phalænopsis, Cœlogyne cristata, Dendrobium nobile, D. moniliforme, where a large supply of flowers is required during winter and spring, should, with Lycaste Skinneri, be grown. Cœlogyne cristata will have completed growth, and water must be given moderately as the flower-spikes advance or they will damp. Disa grandiflora will be making growth freely and should receive a sprinkling of soft water once a day, a night temperature of 45° and a day one of 50°. Odontoglossum Bluntii section should be allowed to have a cool moist atmosphere and a temperature at night of 45° and during the day 50°. Oncidium macranthum, O. zebrinum, Masdevallia Veitchii, M. Harryana, M. coccinea, and M. Tovarensis, all grow freely in the above temperature. Odontoglossum Roezlii, O. vexillarium, and O. Phalænopsis grow freely in a temperature of 55° at night and of 60° during the day throughout the winter months, and should be found in every collection, particularly Roezlii, on account of its free flowering. All shading may be dispensed with for the present, unless required in severe weather to prevent injury to those plants that are near the glass, and where there is not sufficient hot-water piping to keep up the temperature required for the benefit of the plants. Flowers are generally scarce this month in many varieties of Orchids.—G. Culley, *Ferniehurst, Shipley, near Leeds.*

Roses.

Those who wish to make plantations of Roses should at once set to work and make the best of the present weather, which is in every way adapted for these operations. Those who have not selected their plants should at once do so, for, by planting early and giving them a fair chance of rooting, a good supply of Roses will be ensured the following season. Well rooted, strong plants should be selected, and it is well to remember that Roses on their own roots, or on the Briar, are superior to those on any other stock. They do well on the Manetti, but their suckers often prove troublesome, and when the plants grow strongly the buds are liable to be pushed off. Where Roses are required for planting upon lawns, in the form of umbrella trees, pyramids, or bushes, strong plants of the most vigourous growing varieties should be selected, such as Baronne Prévost and Jules Margottin; the ground should be specially prepared for standards. Planted in this way, the sub-soil should be taken out of a circle 5 feet in diameter, and filled in with good drainage and plenty of good loam and rotten cow manure. Plant, and tread all firm, and, in placing the turf, allow enough soil to admit of the turf settling down to its original level in the spring. In clearing out Rose plantations and digging borders, the long autumn straggling shoots should be shortened back, so as to give the plants a neat appearance until the spring pruning time has arrived. Trellis or pole Roses should be slightly pruned back and tied in with the same object. Cuttings may still be made and inserted out of doors if required. Rose beds should be dug over and manured, great care being taken in digging between the plants not to break their fibrous roots. Carefully root out all suckers as the digging proceeds, as it saves much trouble the following season if they are now removed with a sharp knife. The frost has not, as yet, been very severe this season, and many Roses still continue to bloom freely, but they are Roses only in name for they have lost all perfume. Pot Roses in doors are, however, very strongly scented, especially the Tea varieties.—H. G.

Indoor Fruit Department.

Vines.—The buds on pot Vines which have been in heat for the last three weeks will now be swelling slowly; do not increase the heat about them or they will burst weakly. Water may be required oftener now than hitherto, and they must never be allowed to become dry at the root after this time, or a check will be given from which they will not recover. Canes for fruiting later on in the season will now be casting their leaves; therefore, water them sparingly, and they should be protected from rain. Indeed, all young Vines which have been temporarily set out of doors should now have the protection of a cool house. Those which have ripened their wood, and which have no foliage on them, may be placed in an open shed, where they may remain until wanted for forcing or planting in spring. Those who contemplate planting Vines next spring will do well to order the Vines now which they intend using then, for disappointment is often experienced when the Vines are not selected until they are wanted for planting. Ripe Grapes must have a dry atmosphere, and the bunches must be carefully inspected every other day and all decaying berries removed. Avoid much firing; on frosty nights the temperature may be allowed to fall with advantage to 40°. Firing is useless to ripen Grapes now; if Vineries in which they are hanging contain plants water these only on fine mornings, and open the top ventilators afterwards, in order that the damp arising therefrom may be dried up before night.

Pines.—Growth in Queens intended to be started next month should now be at a standstill; as upon this, to a certain extent, depends their certainty of fruiting. Where bottom-heat is furnished by means of hot-water pipes close the valves when the heat in the plunging material gets above 65°. Give no more moisture to the soil than will keep the roots from becoming brown and wiry, and it does not take much to prevent this. Successional Queens may be treated in much the same way. Those not to be started until February or March may be given a little extra heat, if necessary, in order to mature their growth. Look to the bottom-heat thermometers in newly-made beds and regulate any deficiency or excess. Fruits wanted at any particular time, and which are likely to be late in ripening, may be hurried on a little after they are out of bloom.—J. Muir.

Salads.

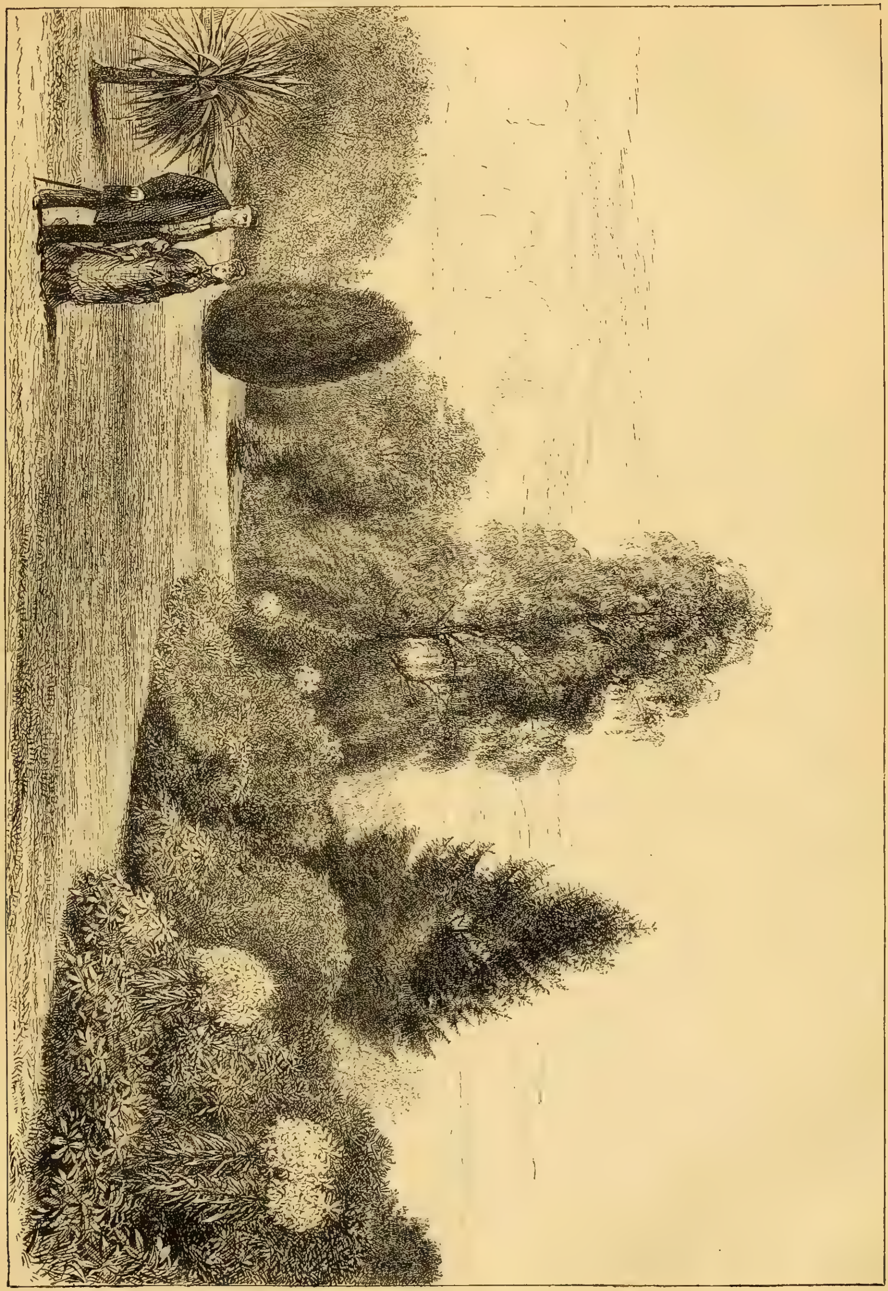
Cultivators, generally, will agree with Mr. Gilbert (p. 354) regarding the excellence of well-grown Lettuce at any season of the year, but it is evident that, though Endive is not esteemed as an esculent at Burghley, it must be appreciated by many. If we are to judge from the large consignments of this vegetable which may be seen imported from the Continent and exhibited for sale in metropolitan shop windows, the consumption must be immense. I observed lately some very tempting specimens of this vegetable, which had centres 9 inches wide, edged with a green margin of beautifully curled leaves, and formed very pretty ornaments, besides being wholesome for consumption. Large quantities of Endive are said to be produced by French cultivators; and here I must confess that, though it has been in demand in every garden where I have been a cultivator, I never yet saw such Endive grown as that which I here allude to. The "bitter" of Endive and Chicory may have been introduced to the salad bowl, in the first instance, as a tonic, and when amalgamated with sweet and nutty flavours, it is a most valuable acquisition. Batavian Endive, when well grown and properly blanched, is excellent during the autumn and winter months, and, though not equal to finely grown Lettuce, it is a very delicious substitute.—M. Temple.

VIEW IN THE GARDEN AT DUNEEVAN, OATLANDS.

In The Garden for August 17 we drew attention to the magnificent display of Lilies (L. auratum) in Mr. McIntosh's garden at Oatlands. The Lilies were the finest examples of culture we had ever seen, and many spots in the garden struck us as being of unusual beauty as regards design. Since then Mr. McIntosh has kindly acceded to our request to send us photographs of several scenes in his garden, of one of which we now publish an engraving. It does not, however, show the colossal dimensions of the great tufts of Lilium auratum, some of them 10 feet high, which were in the garden when we saw it in August. This garden, which is by no means a large one, reminds us of the fact that it is not in "great gardens" (great as regards extent) that we find the most beautiful effects in planting or all that is generally understood by the term "landscape gardening." Where striking beauty exists in our large places it usually arises from the fact that the natural disposition of the ground is such as to place it out of the reach of the destroyer, many naturally fine places being spoiled or defaced by dreary geometrical designs or patterns of beds, or promiscuously dotted planting, or ribbon borders intended to astonish and delight, but which make sad all those who know what a garden should be. For examples of the best laid out gardens we must look to those of comparatively small extent; they often make us wish to see the larger places laid out with the same kind of taste. In the particular glade to which we now direct attention, the elements of success are simple and clearly to be seen. We have variety of form in the trees and shrubs, easy, natural-looking outlines, and a free open foreground, with no bare earth or formal figures. But, simple and evident as these and their good results are, we fear it will be long before they will be generally substituted for the puerilities to which we have so often called attention.

V.

Garden Rubbish.—The rubbish which is left in the fields, in the orchards, gardens, &c., at the close of the season, furnishes hiding places for a vast number of vermin. Eggs, larvæ of destructive insects, and other pests find a safe refuge wherein to pass the winter, in husks, stalks, &c., and upon or beneath pieces of bark, chips, weeds, loose boards, and in corners of out-buildings. If the rubbish is gathered, raked up, and burned, and buildings whitewashed, myriads of vermin would be destroyed and prevented from propagating. As soon as the fields are cleared from crops, and work in the gardens and orchard ceases, a general clearing up should be made, and no protection given to vermin of any kind or anywhere.



VIEW IN THE GARDEN AT DUNEEVAN, OATLANDS.

THE PEACH.

(Concluded from p. 358.)

Culture Under Glass Screens.

The prevalence of severe day frosts in many parts of the country, more especially in northern and low-lying districts, together with the cheapness of glass, have been the means of making what are called Peach screens, or cases, more common than formerly. Such structures are generally unheated, their object being simply to ensure safety from frost, and consequently more regular crops. As has been before pointed out, where copings of improved modern description are sufficient protection, which they are in the majority of cases, expensive glass screens are unnecessary. As they are a necessary adjunct, however, in some places, this paper would be incomplete without reference to them. It is very needful, in the first place, to say a few words about their construction. They are made of various shapes and sizes; some are screens, consisting simply of a row of glass sashes laid against the wall, with permanently open spaces at the top and bottom for the admission of air. This is the cheapest form of a screen; but as it is a great deal more expensive than a good coping, and hardly a whit more effective as a protector—there being no means of closing it in severe weather—it should not be adopted. Anyone going to the expense of erecting a screen should make it worthy of its name and object. It should be placed against a good high wall, be light and elegant, not more than 5 or 6 feet wide, and the ventilation should be on the most ample scale, or roasting in summer and other mischief will be the result. In the best form of cases we ever saw, in which Peaches succeeded well, and the fruit could, when required, be retarded till October, the top and bottom ventilators are about 3 feet wide—nearly half the area of the roof—and could be opened wide. Hence the trees were virtually growing in the open air, while at the same time they could be shut up close when required. On the other hand, some screens have not above 9 inches or a foot of ventilating space at the top and bottom, and the consequences are that the trees are forced into flower by the intensified heat of the bright spring sun at a period when frosts are severe, beyond the protective power even of a glass house; and in summer the heat is so great as to hurry the fruit in before it is wanted. In such structures the back wall alone should be devoted to Peaches; low front trellises are worse than useless. A row of fruit trees in pots along the front will succeed and look well, and they will have plenty of top room in a house like the above, the roof not being flat, but nearly perpendicular. Not the least useful feature of a Peach case is the accommodation it affords for other things besides fruit trees, such as Tomatoes, early Potatoes, Kidney Beans, Strawberries, &c. Border making and planting and training the trees are the same under glass as out of doors. In consequence of the wood having a better chance of ripening, however, it is not necessary to cut the shoots so far back at the winter pruning; indeed, when the shoots are matured to their extremities, they should not be shortened at all, except where this is necessary to secure balance. In the matter of airing and shutting up, &c., in spring and autumn, some intelligence must be exercised, otherwise the cultivator may defeat his purpose. In the first place, assuming that the Peach crop is the chief object, and that no attempt at a compromise in the way of temperature is made to suit any other subjects that may occupy the house for the time being, the aim during winter and spring should only be to exclude severe frost. If more than this is attempted, and full ventilation is not given during the day, it is exceedingly probable the buds will be found moving in January and February, and expanding at too early a period in spring to be safe, as has been before pointed out. We have seen this happen more than once; and when the flowers did escape destruction by frost, and the fruit set, it often dropped later on, the temperature not being high enough to promote a steady and uninterrupted growth. The fruit of the Peach always makes the healthiest progress when it sets late, and the foliage is also better. Anything like forcing must therefore be carefully avoided; the ventilators need never be closed day or night even though the thermometer under glass registers 5° or 6° of frost, which will do no harm whatever to the trees. Only when the flower-buds begin to open generally of their own accord—which they should not do much before the trees on the open wall, if they have not been pushed—must protective measures be taken by shutting up the house at night, according to the weather. It matters not how late the trees may be in flowering; the time can always be made up by a little forcing when the fruit has fairly begun to swell, but it is bad practice to hurry at the flowering season. If the weather is mild for the season, the ventilators may be kept open continually; if bright and sunny during the day and frosty at night, ventilate freely in the daytime, but shut up about an hour before the sun is off the house, and damp the trees slightly at the same time with water at about the same temperature as the house. After a hot sunny day this restores the vitality of the flowers, which often droop under such circumstances, and ensures a good "set." The belief that a dry arid temperature is favourable to the setting process is utterly erroneous. We refresh the flowers daily with the syringe in both late and early houses if the weather is dry, and ventilation free, and the trees are usually smothered with fruit. In cold dull weather, such as is often experienced in spring, a little air only should be given to keep the atmosphere of the house moving, but no more. East winds, accompanied with the usual leaden sky and a low temperature, are the conditions most unfavourable to Peaches, whether inside or out. Low night temperatures, short of actual frost, are never injurious to the bloom, if the day temperature can be got up to 55°, or 60° at least, but 75° is better, and 80° is not to be feared with plenty of air. When, however, both day and night temperatures are low for days together, the worst results may be anticipated; but such a state of things is hardly to be expected if the trees have not been pushed too early into flower. In March and April it is seldom that a genial growing temperature cannot be maintained by judicious shutting up and otherwise economising the sun's heat. Presuming that the Peach case has to afford a supply of fruit during August, September, and October, it will seldom be found needful to hurry the crop during the summer, but rather to give all the air possible until the last fruit is gathered. Syringing and damping unless for the purpose of destroying insects, should be discontinued from the time the fruit begins to ripen; and if the shoots are not ripe to their extremities by October, the house should be kept a little warmer, but dry, and never without air, and finally be thrown open when the leaves fall from the trees.

Watering.

As the greater portion of the roots are usually inside in Peach cases, they are entirely dependent on artificial waterings, which must be given on a liberal scale, particularly if the soil is light, and the border shallow and hard. The evaporation from an inside border, over which a continual current of dry air is sweeping, is greater than out of doors. It is a wise plan to save all the rain water by leading it into open cisterns at convenient points inside the house, and in case of dry summers, these cisterns should be supplied by pipes, that, under any circumstances they may be always full of water at the same temperature as the house. To ensure the regular moistening of the soil throughout, inside borders should always be level; when they slope towards the front the water runs off. Mulching will render the soaking of the soil easier, but if the border is not mulched it should be very slightly forked over before watering, as the "cake" on the surface becomes almost impervious. One good watering should be given in February, before the trees come into flower, and afterwards the supply should be regulated by the condition of the border, which should never be allowed to become dust dry on the surface, a pretty sure indication that the supply at the roots is also inadequate. After the leaves have fallen watering may be discontinued till spring.

Culture in Pots.

Peaches and Nectarines are frequently grown in pots in orchard houses, square corners of cool houses, and not unfrequently in Peach cases along with other fruit trees. In pot culture the trees are grown in the bush form, no particular shape in training being adhered to, success depending chiefly on the method of pinching and pruning adopted, and the proper care of the roots. The pot system is adapted to small establishments, where neither walls nor ranges of glass exist, and the amateur with only one or two houses, even of the most temporary description, may secure a fair supply of fruit during the summer and autumn months from a moderate space, as pot-grown trees, when intelligently managed, are exceedingly prolific and certain croppers.

Soil and Potting.

For pot culture the soil needs to be rich, as the roots are confined to small compass, and cannot ramble as in a border. Good and strong, but not too adhesive, turfy loam, that has been laid up for a month or two, is the best, and, before using it, it should be chopped up with the spade, and about one-fifth of well rotted cow manure and a little bone dust added; and if it is not of a naturally calcareous character, a small proportion of old lime scraps well pounded may also be given. Those who have not the means of procuring turf for this purpose may use without hesitation common garden soil, of which the staple is loam, and to this about one-fourth of cow manure may be added, lime scraps if needful, and bone dust and bones, or Standen's manure, a lasting and powerful stimulant for pot plants of any kind. Excellent plants, ready formed and cheap, can now be had from the nursery, and it is in every way better to begin with such plants, which do not always need potting the first year. But, as the potting must be described, we shall suppose the plants to have been shaken out, pruned, and sent to their destination in October or November; later than this is not desirable, particularly if a crop of fruit is expected from the trees the following year. The pots should be from 12 to 18 inches in diameter according to the size of the plants, but 12-inch ones will usually be found large enough at first, and 18 inches should never be exceeded—in fact it is seldom they are used so large. After seeing that the pots have been carefully drained with clean crocks, fill in about 3 inches or more of soil, according to size of the roots, and ram it hard with a wooden rammer. Then take the tree, see that the roots are freely shaken out and disentangled, set it in the pot erectly, and fill in all round to within 1½ inch of the rim, for water space, taking care to ram the soil round the sides with a piece of stout lath as the filling proceeds, and to leave the surface smooth and level. The stem should not be buried below the graft, but the roots should not be too near the surface. After potting, water the plants well, and remove them to their winter quarters which should be perfectly cool and airy, and either plunge the pots in the border, or pack them round with leaves or litter, which will make all safe till spring, and obviate the necessity of watering. So long as the mulching is sufficient to protect the roots from frost, the tops will take little harm if the wood is ripe, and a close, damp, or warm atmosphere must be prevented by keeping the house always as open as possible, except during very severe frosts. When the flower-buds begin to expand which they should not do generally till March or later, if the trees have not been pushed, air abundantly in fine weather, but protect from cold winds and frost, and in the afternoons of fine, bright, and dry days, dew gently over head to refresh the flowers and trees, but before damping always reduce air considerably without completely shutting up, unless for frost.

Summer Pinching.

Now begin those operations to the trees upon which success in pot culture greatly depends. The task of pinching the shoots periodically is easy, and does not take much time; but it must not be neglected. Those who allow their trees to straggle away of their own accord had much better not attempt their culture. Most likely the trees will break profusely enough, and the shoots may require thinning; if so, rub the buds off at an early stage, as in disbudding, and leave the point ones and any others favourably placed for furnishing or filling up gaps; and those beside the fruit may also be left, but pinched beyond the first few leaves. By May the young shoots generally will be from 3 to 5 inches long, when they should all be pinched, just nipping the point out. The shoots will break again, and the breaks must again be pinched beyond the first two or three leaves, and so on till the end of summer, only care must be taken not to continue the pinching so late in the season that a terminal leaf bud has not time to form, especially with such as the Noblesse Peach, which makes comparatively few leaf buds at any time. When thick the fruit should be thinned in the gradual manner described in previous chapters, and over-cropping must be avoided. Be content with a moderate crop of fruit rather than risk failure. At all times give plenty of air, and see that the plants are not too crowded nor shaded in any way from the light.

Watering and Other Culture.

We can testify to the good effects of plunging the pots, or placing a mulching round them in summer, as well as in winter. This keeps the roots in a uniform condition as regards temperature and moisture, which no other attentions can secure, and also saves much labour in watering. Mulching among the pots, or plunging them, is better than covering their surfaces with rough lumpy cow or other manure, as we have seen done, and leaving the sides bare. The surface mulching prevents one from seeing when the roots require water, which is an important matter, as a day's neglect may result in the loss of a crop. As a stimulant during the bearing season, a thin dressing of good loam, mixed with Standen's manure, at the rate of a large spoonful to a 12-inch pot, will be found to promote in an extraordinary degree the formation of feeding roots and vigorous growth. In watering avoid excess, which turns the soil sour, but at the same time water abundantly when the soil seems dry. If an inch or so of space has been left in potting, to hold water, it will facilitate the work very much, and generally ensure a soaking at the first application, instead of having to water the plants subsequently two or three times. Such, briefly, sums up the summer treatment of plants in pots, and we have now only to notice the winter pruning. If summer pinching has been attended to, however, this operation consists in only thinning out the shoots and spurs where they are too thick, cutting off dead points, and shortening back unripe extremities, while operating at the same time with an eye to the symmetry of the tree. By the following spring, as the pots will be packed with roots, the surface soil of the pots should be cleared off till the roots are laid bare, and a liberal top dressing of rich compost administered. This, with occasional applications of liquid manure, will carry the plants through the second year, and the third year they may be partially shaken out, their roots reduced, and put into pots a little larger than before.

Forcing Houses.

Early Peach-houses, in which the crops are expected to be ripe any time between April and midsummer, must be lean-to, and pitched at an angle that will catch the sun's rays most effectively early in the season. An angle of 45°, or thereabouts, is found most convenient and suitable in this respect, and affords about equal scope for the branches and the roots when the latter are inside. The roof should be glazed with the best 21-ounce sheet glass, and the panes should be a foot wide. The ventilation should be on the most ample scale, and if the sashes can be arranged so that they can be taken off altogether from the time the fruit is gathered till November, so much the better, as the roasting the trees frequently receive after the wood and buds are quite matured, and when they should be at rest, is a fertile cause of the buds dropping. Inside, the roof should be wired 18 inches from the glass, and the trees should be trained under the roof only. Back wall trees seldom do well in early houses, and as they necessitate a shorter roof trellis, and a restricted development of the trees, in both cases it is not an economical arrangement. The trees always do decidedly better near the light and air, and when trained up under the glass the branches have all an equal chance in this respect, and from experience we know they do best. The heating surface, *i.e.*, hot-water pipes, should be sufficient to sustain as high a temperature as will be required without making it too hot, and the boiler power must be in proportion. These are the essentials; details may be filled in according to taste.

Trees for Forcing.

Those who cannot do otherwise, must begin with young trees, and train them up in the manner described under the head of "open-air culture," but years will be saved if partially established bearing trees can be got to begin with. These can often be had where Peaches are grown outside, or nurserymen can generally procure them for a customer when required. It is also cheaper to buy trees that will begin to bear at once than to plant young ones and wait years before fruit in quantity can be expected from them. Trees of large size are removed from the open wall frequently, and bear good crops of fruit the same season. The border may be made in the same way, and of the same materials as the open wall border before described. Perhaps more care in the matter of drainage may be observed, and the border should be chiefly inside if practicable. If partially, or altogether outside, the roots must be protected by some means from heavy and cold rains during the forcing season. Wooden shutters, or slates laid on loose, are handiest for this purpose, but we never use anything else than a good layer of leaves thatched with straw, which keeps the border as dry as could be desired, and it is generally necessary to use the leaves for the sake of the slight heat they afford, whatever kind of protection is used against rain. Whether the trees employed are young or old, the sooner they are lifted and transferred to the forcing house, after the leaves begin to fade, the better. Observe the usual care in planting, and, if there is an inside border, plant in it, as the roots will find their way out soon enough. Pruning should also be performed at the same time, and the trees may be tied to the wires, spreading the branches out thinly and regularly, but without straining or bending them too much; the easier they are allowed to rest the better. In fact—although it drives the work of tying in late in the season, when there is less time for it—we never tie in the young shoots till the fruit is set and stoned, having observed that they set their fruit most freely when left lying loose on the wires, and swayed about by every breath of air.

Forcing.

In forcing the Peach and Nectarine, training, disbudding, pinching, pruning, and thinning the fruit are all performed in the same way and in the same order as in out-door culture, or under glass screens, as has been fully detailed in former chapters. Former directions as regards the watering and manuring of the border, &c., also apply to forced trees, so that it is only necessary to speak of temperature and moisture, conditions which in forcing, have to be regulated almost entirely by artificial means, hence the importance of studying these points as occasion arises, for the Peach is very susceptible in this respect, and will bear neglect less than the Vine and some other fruits, the size and quality of the fruit being, however, not so much affected as the regularity and abundance of the crops. Early Peaches are the most expensive to produce, but the best paying crop when they are good and abundant, as the prices in Covent Garden and elsewhere, from May till the end of July, testify. Given well-ripened wood to begin with—a point that can always be secured with early Peaches—failure should not occur with ordinary care. The practice here recommended has given us good crops for many years without a single miss, even in the worst and dullest of seasons. Of course, from the flowering period till the stoning of the fruit, unrelaxed attention is given in the matter of temperature, airing, shutting up, &c., and any extra efforts in this way, and which do not always mean extra labour or expense, we have always considered well bestowed. For the earliest crops, Peaches are seldom started sooner than the beginning of December, but with newly-planted trees the beginning of January is soon enough. Before this, of course it must be seen that both the house and trees are clean and free from insects. To this end, the trees may be washed with soap and water, as a precaution against red spider and thrips. Painting with a mixture of soft soap, soot, sulphur, tobacco liquor, and clay to make the whole thick and adhesive, will also be necesary if the trees are badly affected with the Peach scale; but for the spider and thrips washing is enough —at least painting will give no additional security, and it is laborious work. We have no faith whatever in winter dressings as a preventive of the above pests, which make their appearance at any time when circumstances favour their existence. During the first fortnight after starting no fire heat need be given at night, unless the temperature is likely to fall to the freezing point, and the day temperature should range from 45° on dull cold days to 60° with sun heat in fine weather; and to sustain it at above the minimum figures the fires should be lighted if necessary. By the middle of Januaary the night temperature should be raised to from 40° to 45°, according to the weather, and it will do no harm whatever if the thermometer is allowed to run up to 75° on sunny days, with plenty of air, shutting up early on all favourable occasions to retain the sun's heat, and gently dewing the trees overhead at the same time; but moisture must be sparingly given, unless it is observed or felt that the atmosphere of the house is too dry, through the combined influence of hot pipes and sun heat. So early in the season, we never find syringing necessary, unless the pipes have been made rather hot. In ventilating, begin early in the morning with the rising temperature, and admit air little by little, in about equal volumes at back and front—least damage is done by front air—and decrease it at the same rate; but never shut the ventilators quite close; leave always a chink of air on at the top and bottom of the house, and to ensure this, it is not a bad plan to tack a piece of lath on to the shutters, to prevent their being closed through inattention on the part of those in charge. To prevent misunderstandings or excuses on the subject of temperature, when different men have to take their turn on duty, a label should be attached to the thermometer with the respective temperatures marked thus, for example:—Day, cold or dull, 68°; bright, 75°. Night, cold 45°; mild, 50°. We suggest this, not that we are sticklers to a degree or two, one way or the other, but simply to ensure attention, for one cannot always trust either to the discretion or memory of workmen. After the first three or four weeks, we regulate the temperature, &c., by the progress of the buds. Trees started in January should be coming into flower early in February. When this is observed, the average night temperature should range about 50°, and the average day temperature about 65°. We say "average," for we daily allow the thermometer to range considerably above and below these figures, according to circumstances. Always attending to the ventilation strictly, we are glad if we can run the temperature up to 80° by noon, on fine days sometimes 85°, though 75° is the figure generally reached without too much fire-heat, and on such occasions, if the night temperature drops to 40°, or even a degree or two lower, we fear no injury. In dull weather which often continues for days at this season of the year, the night temperature is seldom allowed to get below 50° or 55°, but this is more for the sake of getting the heat up early in the day to about 65°, sometimes 68°. These figures necessitate rather hot pipes, which dry the atmosphere considerably, and the opportunity is taken to give the flowers a vigorous dewing with the syringe three or four times a week, even in the dullest weather. This distributes the pollen better than a brush, and more expeditiously, and promotes a healthy set. These temperatures will be regarded as high by some, and the practice of syringing as somewhat unusual, but we have only to state that on three different occasions we had scarcely one bright day or hour during the whole time our early Peach trees were in flower, and the above practice was adhered to to the letter, and with the best results, for the fruit set in great profusion, while several of our neighbours failed to get a crop at all with the reverse treatment. After the fruit is set, the average day and night temperatures may be raised about 5° respectively, and when the fruit is fairly stoned—presuming ripe fruit is expected about the middle of June—the night temperatures may be pushed gradually up to 70°, and 75° on dull days; but on bright afternoons the house may be shut up to 85° or 90° in a regular way till the fruit is observed to be changing, after which the temperature must be reduced a little, more air given, and moisture withheld. From the time the fruit is set till it turns, syringings every afternoon on dry days must be given to keep down insects; and after the fruit is gathered the sashes should be removed from the house, or opened as widely as possible, and left up for the remainder of the season to all weathers.

Selection of Kinds for Forcing.

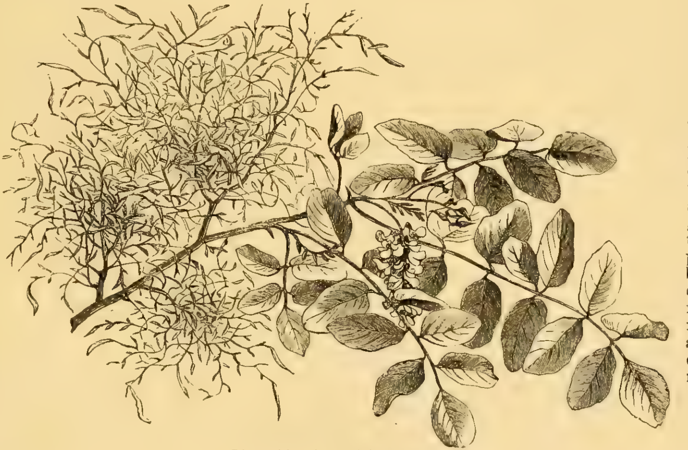
Peaches:—Royal George, Noblesse, Bellegarde, Stirling Castle, and Acton Scot. Nectarines: Elruge, Violette Hâtive, Newington, Balgowan, Victoria, and Downton.—"Field."

TREES AND SHRUBS.

DANGER OF PLACING EARTH ROUND TREES.

Too much importance cannot, I think, be attached to the remarks made on this subject in your issue of the 16th ult. Placing earth round tree stems is a practice frequently adopted where there is surplus soil to be disposed of, and it cannot be too often nor too strongly condemned, either by those who take an interest in trees for their beauty, or by those whose pleasure, happiness, and even health, is in some degree dependent on the existence of trees in the vicinity of their homes. These remarks are more particularly applicable to the suburbs of large towns, where villas sometimes spring up so rapidly, and become inhabited so quickly, that neither time nor opportunity is afforded for the proper disposal of the surplus soil and rubbish which accumulates on these occasions. In many instances, in order to save time and expense, rubbish is conveyed into the shrubbery or plantation close at hand, where it is levelled down, and perhaps sown with Grass seeds, and thought no more of until the shrubs or trees against whose stems it has been laid, show unmistakable signs of weakness and debility. Then the question arises in the mind of the anxious proprietor, "What can have been the cause of such ill-health?" and most cheerfully would he now sacrifice fifty times the amount which would have been required for the better disposal of that which he now finds has been the unfortunate cause of the mischief, if only he could but see his once charming shrubs and trees re-invigorated and restored to their original beauty. There are innumerable instances of such errors having been committed in the situations I have mentioned, the results of which are but too evident to the most casual observer. More especially are they visible on those sombre, yet beautiful, Pine-clad hills which fringe the south coast, where the houses have sprung up, as if by magic, during the last few years, under the cool protecting shadows of the trees. The Fir tribes invariably root near the surface, and are therefore very liable to injury by having their roots disturbed. They also appear to have a special dislike to soil being placed against their stems, or over their roots, except to a very limited extent. Consequently, wherever the excavator or builder has encroached too closely on their territory, debility is apparent; but where they have been allowed to remain unmolested in their primitive state, with their two appropriate companions, Bracken and Broom, they still maintain their pristine beauty, and present a great and, in most respects, happy contrast to their less favoured neighbours in the adjoining square. A very striking instance of the evil resulting from the practice I have mentioned, came under my notice a short time since in one of the most fashionable sea-side retreats. In disposing of the soil, which had been dug from the foundation for a new house a few years ago, and which consisted of peat, marl, and gravel in about equal proportions, it had been spread under the adjoining trees to the depth of 10 or 12 inches, and at the present time every tree so treated presents an unhealthy appearance, which may gradually, but will most surely, end in premature death. Had the soil been very dissimilar to that in which the trees were growing, it might have been supposed to contain matter deleterious to them, but as such was not the case the most reasonable inference appeared to me to be that the mischief was caused by the unnatural exclusion of air from the roots, and this conviction was further strengthened by observing, at a subsequent visit, that a hard cement-like crust had formed on the surface, after heavy rain, which appeared quite impervious to air. If this be the correct conclusion how necessary does it seem that this injudicious practice should be condemned on every hand, so that the ignorant, as well as the careless, may be forewarned of the evil consequences which must eventually ensue. If soil must be so disposed of, it should be as nearly as possible of the same texture and composition as that in which the trees are growing, and then only to a very limited depth, so as not to destroy, even for a short time, that natural porosity of the surface soil which is so largely produced by the roots themselves. In respect to those trees which are not so easily injured by this practice, and which will bear any reasonable amount of soil being laid over their roots, I still think the same rule in respect to the texture and composition should be, as nearly as possible, adhered to, and if placed near the stem, a cavity quite round the tree, and down to the base, should always be left, and of sufficient width to allow a free circula- of air, and also to admit of being cleared of any matter which may, and does, freely accumulate in it. The sloping bank system anwers well in some situations and has the advantage of showing more of the trunk, but if the surface of the ground inclines to that particular point, or the soil be very tenacious, or if the ground be not of a thirsty nature, evils may accrue from an accumulation of too much water.

T. Challis,
Salisbury.



Dimorphism in Robinia dissecta.

I have buried many trees 3 or 4 feet in the soil. Old trees in many instances died; young ones in most cases flourished, but more particularly Poplar, Elm, and Beech. I have never found that Oaks liked the operation of covering in and embedding them to any extent except when making roads on the slopes of planted hills where the soil thrown on the lower side amongst them always gave them fresh vigour. T.

ROBINIA DISSECTA.

The origin of this remarkable variety of the common Robinia is unknown, but it is none the less worthy of notice on that account. It forms a shrub or low tree, the branches and twigs of which are small and short, somewhat contorted, fragile, and very numerous; the leaflets are thin and narrow. Such are the general characteristics of this Robinia, whose appearance reminds one of trees the leaves of which have been eaten by caterpillars, and have thus been reduced almost to the mid-ribs. In this, which may be said to be the normal state of the plant, no flowers are produced; but wherever any branches assume the characteristics which belong to the type—a circumstance which rarely happens—they produce blossoms in abundance, as shown in our illustration. R. dissecta, like other varieties of Robinia, may be propagated by cleft grafting it upon the common kind. Either in groups or isolated on lawns, it has a pleasing and excellent effect.—"Revue Horticole."

AUTUMN AND WINTER BERRIES.

The berries of summer, as a whole, may lay claim to greater usefulness than those of autumn and winter, especially as food for man; but in point of beauty the latter class excel. Bright-coloured fruit seems to come in as the flowers fade and pass away, all this, doubtless, being intended to equalise and extend the brilliant side of Nature, and show us that there is no gloomy side if our eyes were rightly trained to see what is most worthy of being seen. The sharp, frosty nights of autumn tend to bring out and uncover the half-hidden glories which have been maturing under the shade of luxuriant summer leaves, just as adversity frequently brings to light the solid, noble virtues of men and women, which otherwise might remain for ever obscured within the ample folds of prosperity. The sweet, bright scarlet berries of the low-creeping Partridge Berry (Mitchella repens) ripen amongst the weeds and undergowth of our forests; but it is not until the frosts of autumn have laid low its lofty, "high-headed," weedy companions, that its dark green leaves and brilliant-coloured fruit is brought to light. Thenceforward, through the coldest weather, buried beneath snow or exposed to the sharpest frosts, it fades not, but remains constantly beautiful, furnishing nutritive food for birds as well as quadrupeds of various kinds. Next to, and ascending the scale, we find the universally admired aromatic Winter Green or Checkerberry (Gaultheria procumbens), the delight of children as well as many persons who have long since arrived at years of discretion and of mature judgment. Like the Mitchella, the bright scarlet, aromatic berries of the Winter Green remain upon the plants through winter (provided they are permitted to do so) coming out bright from under their pall of snow. But I cannot stop to hunt out all these little woodland pets which bid defiance to old Boreas as he howls through our forests and fields during six months out of the twelve; still, a few of the most valuable and showy species must not go unnoticed at this time. The low, creeping Cranberry of our northern swamps and bogs, is a beautiful plant for cultivating in gardens, to say nothing of its valuable fruit, well known to almost everybody. By a very little care, it can be made to thrive in any good soil that is not too heavy—a light sand or loam suits it best—and then by an occasional watering in summer a fair crop of fruit may be obtained, both plants and fruit being ornamental, especially in autumn. There are two or three native species, and almost innumerable varieties of the low, trailing Cranberry (Vaccinium), the fruit varying in size, form, and colour. But, what is called the High-bush, or Cranberry tree (Viburnum Opulus) is a far more showy plant for garden culture than the Creeping, or true, Cranberry. This shrub, as is well known, is the parent of our common Snowball tree, which produces no fruit, while the former yields a large annual crop. It is a common shrub in many of the swamps of our northern states, growing from 6 to 10 feet high, and may be seen at this season loaded with large clusters of brilliant red berries. These have a pleasant, sharp, acid flavour, but, owing to the large nut-like seed, they are little sought after for culinary purposes. Growing in similar locations we find the common Winterberry or Black Alder (Ilex verticillata), a species of Holly, bearing a profusion of bright scarlet fruit. This is one of the most showy of our native shrubs when in fruit, but the flowers are small and inconspicuous. It will thrive in high dry, as well as in low ground, and is well suited to garden culture. The Euonymus or Spindle tree, also called Strawberry tree and Burning Bush, are elegant showy autumn-fruiting shrubs or small trees. There are several native species and many varieties, all of which are worthy of a place among the best exotic shrubs found in our parks and pleasure grounds. The E. atro-purpureus and its varieties are tall-growing shrubs 10 to 20 feet high, with small dark purple flowers, and light bright red fruit, the latter remaining on until mid-winter. The E. americanus is a much less robust species, with greenish-purple flowers, succeeded by crimson fruit. Seedlings from either of the above vary considerably, hence it is an easy matter to produce new varieties. But to name all the beautiful native trees and shrubs which at this time make the fields and forests gay with their showy fruit, would be too much of a task; consequently, I will limit the list to a few more of the very best. The Barberry, although old and common, must not be overlooked in this class, and the Spice Bush (Lindera Benzoin), dotted with its bright red, oval berries, is a pretty shrub found in swamps and low damp woods. The Pond Spice (Tetranthera geniculata) is a handsome shrub closely allied to the last, bearing globular red berries. Then we have the Flowering Dogwood (Cornus florida) with its clusters of scarlet berries, and the Hawthorn, with fruit varying in size from that of a Pea up to an inch in length, and of various colours, from deep scarlet or crimson to golden-yellow. The Snowberry (Symphoricarpus racemosus) droops its clusters of snowy fruit by the side of Coralberry (S. vulgaris), the fruit of which is a deep cherry red. Among the climbing shrubs the Coral Monthly Honeysuckle (Lonicera sempervirens) bears clusters of shining red berries, while from many a shrub and tree the Bitter-Sweet flaunts its orange-coloured pods, half concealing the scarlet, pulpy aril enclosing the seed. The evergreens should not be wholly left out of this list, for the bright scarlet berries of the American Holly (Ilex opaca) and the crimson cup-like berries of the American Yew (Taxus canadensis) are well-known adjuncts to the festivities of our winter holidays. Bring all these hardy, native, autumn-ripening berry-bearing plants together, and the flowers of summer may pass away without much loss in the way of beauty to our gardens. This is one feature of gardening which has been sadly neglected by both writers and practitioners, and more's the pity.—"Moore's Rural New Yorker." [The reader will probably observe some shrubs mentioned above which are not in our gardens. They deserve to be, however; and we hope American nurserymen may be able to supply our own with them.]

A Tree House.—The "Times" correspondent, writing at Philadelphia, says—"From California there has been sent to the Philadelphia Exhibition a section of one of the 'big trees,' which has crossed the Mississippi, and is now on its way to this city. The section has a diameter of 20 feet, and is 16 feet long. It was taken from a tree 276 feet in height, with a diameter at the base of 26 feet. This tree, as indicated by the yearly rings in the wood, was 2,120 years old. The section is hollowed out, so as to make a cylinder, with sides about 2 feet thick, including the bark. It will be converted into a circular house and elegantly fitted up."

Street Planting.—Planting trees in cities and their suburbs requires a greater amount of consideration and knowledge than is bestowed upon it. In the rather extensive plantations of street trees made on Lord Pembroke's property on the southern outskirts of Dublin, the Wych Elm and other large trees have been planted, with the effect of making the streets dark and dreary-looking, at least, in autumn, and of obscuring the light of the lamps at night, although the trees are as yet young. Large trees are only fitted for very wide roads or boulevards.

Sorrel Tree (Oxydendron arboreum).—I had a fine one, 15 feet high, which was killed to the ground in the winter of 1872-73; it threw up several stems from the root, and I liked it better in this form—a dense bush 6 feet high, and the same across—than I did as a tree. Its long pendulous racemes of Lily-of-the-Valley-like flowers make it a charming plant in June and July; and its foliage, which is so clean and shining in summer, turns in autumn to such a fine crimson that, if it did not flower, it would be worth growing as a (horrible name!) "foliage plant." There are so many good things not generally known, that the catalogue of them would be quite as large as of those which are known.—Geo. Thurber, in "American Agriculturist."

Autumnal Tints.—The park here, and the banks of the Orwell, always beautiful, are just now more charming than ever, and, when seen under favourable conditions, such as the last few bright days have afforded, are a sight not easily forgotten. The highly suffused, golden colour of the many Chestnuts of both kinds, and of the Oaks, Elms, and Sycamores is most admirably shown up by the rich reddish-brown of the Beeches, which are just now perfect in point of autumnal leaf colouring. The wild Cherry, too, is glowing with colour, looking almost crimson in the bright sunshine, and when seen in the distance, backed up by the pale leaves of the Chestnuts, might readily be mistaken for a plant in bloom. Those who have to plant on an extensive scale may, with advantage, study the aspect of an autumnal landscape, especially one so rich and diversified as that presented to us this season. Frosty nights remind us that opportunities for such studies do not last for ever, and that ere long the trees will be rapidly denuded of their already fast-falling leaves.—J. Sheppard, *Woolverstone Park, Ipswich.*

A New Weeping Tree.—We have seen a plant of the Weeping Dogwood (Cornus florida), and can say that it is one of the most charming things we ever beheld. The branchlets are completely pendulous, and yet the leader manages to go straight up, so that it can be made very handsome as a specimen, even when worked low. When in flower and fruit it is a striking object—and its dark leaves in the autumn are as beautiful as those of the purple Beech in spring. It was found by Mr. H. C. Thomson, of Warren, Baltimore County, Maryland.—"Gardener's Monthly."

Arbutus andrachne.—Mr. John Bain informs us that this fine shrub is very scarce now; also that Arbutus andrachnoides is very frequently sold for it.—S.

Brugmansia sanguinea.—A large plant of this, which stood the winter here in the open ground, is just opening its blooms. The summer has been very unfavourable, or it would have been in flower more than a month since.—H. Harpur Crewe, *Drayton-Beauchamp, Tring.*

THE KITCHEN GARDEN.

OYSTER BAY ASPARAGUS.

The culture of this justly celebrated Asparagus, which is as fine as the general produce at Argenteuil, and much more simply cultivated, is described by a cultivator, writing in the "New York Tribune," and the instructions given are so concise and full that we re-produce them in the belief that the system may find imitators in this country:—Plant on sandy soil; anything from a clear sand to a sandy loam. It will not thrive in a soil the great bulk of which is gravel; a small amount of gravel will not render the soil less productive, but obstructs and dulls the knife in cutting the shoots. Avoid planting on wet soil, or any soil that is sufficiently heavy to need draining, even though it be thoroughly underdrained. To grow Asparagus in perfection the soil need not necessarily be richer than it must be to produce a good crop of Corn; there are acres of it in this vicinity growing in almost clear sand, fertilised only by a moderate dressing of thatch-drift and sea-weed, and occasionally a small amount of stable-manure, which nevertheless produce as large and succulent shoots as any that reach the market. Some experiments have shown that, by heavily manuring, the crop cannot be made permanently greater than by moderate dressings. In explanation of this, it may be said that, when the soil is very rich, the crowns of the plants extend very rapidly and crowd one another, the result being a diminution of the average size of the shoots and a vast increase in their number. Another explanation may be found by taking into consideration the amount of nutriment which the annual crop removes from the soil. The weight of the annual crop per acre will amount to about 2 or 3 tons. When we compare this weight with that of a crop of Corn—weighed green and including stalks—Grass, or roots, we can readily understand that this crop should not impoverish the soil to as great an extent as many others.

Plants and Planting.

In the selection of seed there is but one variety. An alleged variety introduced a few years ago under the name of Conover's Colossal, has proved undistinguishable from the common variety when planted in contiguous drills. The soil in which the plants are grown should be similar to that in which they are to be permanently set, and rich enough to grow a crop of Onions, Beets, or other roots. Plant the seed in drills 15 inches apart, and about a dozen to the foot in the drill. The plants should not be dug with a fork or any other hand tool; they tear the plants, breaking the roots from the crown. To dig them run the plough lengthwise with the drills, 4 or 5 inches deep, and keep the landside of the plough half way between the drills; the roots will then be cut or broken at this point, a sufficient length of root being left attached to the crown. Fork over the furrow-slice containing the plants with a digging-fork, and shake the earth from them. The young plants lie so near the surface that their buds start very early in the spring, and the shoots are often 2 or 3 inches above the ground by the time it is convenient to transplant them. These shoots may be left to take care of themselves in transplanting and commonly get broken off. Whether it damages the plant or not it cannot be readily avoided, unless the plants are dug early and stored till wanted, in which case the broken ends of the roots are attacked by a blue mould which destroys the vitality of the plant. It is not desirable to plant them out very early; more plants will fail to grow than when the planting is deferred until the soil is dry and warm. Plough out the trenches in which the plants are to be set from 3½ to 4 feet apart; four trips across the field with an ordinary plough will be necessary and sufficient to open a trench as well as it can be done with that instrument. Turn the first furrow-slice towards the trench previously opened; return, leaving a ridge 6 or 8 inches wide between the two furrows; return again, ploughing out this ridge; once more, in the same furrow to deepen it and leave it straight and clear. The trenches should be of such depth that the plants will be 6 inches beneath the surface when it is levelled off and hardened down by rains. Distribute the plants 15 to 18 inches apart beside the trench in which they are to be set. With an ordinary hoe remove the loose earth that has fallen behind the plough into the trench, from the place where you wish to set the first plant; drop the plant in its place, and cover it about 2 inches deep with loose earth drawn from the place where the next plant is to be set. Walk in the trench and proceed in this way until the plot is finished. It will make no difference how the roots of the plant are distributed; the main point is to put the crown in the right place.

Culture, Cutting, and Subsequent Management.

The manure may be spread broadcast before the plot is ploughed, or broadcast after it is ploughed, and before the trenches are made, or it may be put in the trenches after the plants are set. In the last case it should be fine, so as not to interfere with the young shoots. When the shoots have grown sufficiently, the weeds about them should be killed by drawing earth over them, partially filling the trench; this should be repeated during the summer until the trench is filled. The spaces between the drills should be kept free from weeds with the plough or other horse-implement. If the plot is made sufficiently rich when the plants are set, they will make a large growth the first summer, and the shoots may be cut from them the succeeding year. For a rule to decide by whether they shall be cut or not—if the shoots are large enough to make a bunch of prime Asparagus, cut; if they are not, wait till the next year. Any well-treated plot ought to produce a moderate crop the second year after planting. I will now describe the mode of culture for all succeeding years. Cut the tops with a hoe early in spring; rake them in windrows and burn. As soon as the earth is dry, plough off the drills; to make a finished job of it run the plough four times over every drill, leaving a dead furrow directly over the plants. If any stumps are left standing, cut them with the hoe, since they obstruct the knife in cutting the shoots. Before the next ploughing, the manure allotted to the plot should be applied; spread it broadcast. When the first shoots appear, in the dead furrows, reverse the former process with the plough, ridge up the earth over the plants, and leave the dead furrows half-way between the drills. Flatten down the ridges with a light harrow, or, if it is desirable to have them look well, make them smooth. The harvesting of the crop will begin about the 1st of May, and continue, if the plot has been planted three years or more, until the 20th of June. During the cutting season one hoeing will be found advantageous; when the weeds are allowed to grow unchecked until June 20 it is difficult to kill them, and many shoots of Asparagus will thus be left until they grow too long. Directly the cutting for the season is finished, repeat the process directed for early spring, leaving a clean dead-furrow for the after-growth to start in. Another hoeing, about three weeks thereafter, will be sufficient for the remainder of the season. A plot of Asparagus will reach its maturity in its fifth or sixth year. After the sixth year the average size of the shoots will diminish, but their number will increase; the crowns of the plants begin to crowd one another and approach the surface, rendering it difficult to plough over without striking them. In twelve or fifteen years after planting the proportion of small and worthless shoots becomes so great that the crop is no longer profitable.

Conqueror Cucumber.—Messrs. Kelway, Langport, Somerset, have, at the present time, a very fine crop of this new Cucumber, of which specimens and photographs were exhibited at South Kensington on the 1st of September last. The seed was sown on the 15th of May, and thirteen plants were planted out on the 2nd of June. Each plant now bears, on an average (without the aid of artificial heat), thirty Cucumbers, from 18 to 34 inches in length. The house in which these are growing is erected and glazed on a new principle, without wood or paint being exposed, thus doing away with the old troublesome method of fixing the glass in putty.—D.

New Zealand Spinach.—I agree with Mr. Hobday (see p. 354) that this is a most useful vegetable, both for a dish and for greening soups, and the amount of produce which a few plants of it will yield is quite astonishing. I have grown it for many years, and have always found it in great request. It succeeds best sown in 4-inch pots, and thinned out to three plants to a pot. When the pots become filled with roots, a shift should be given into a 6 or 8-inch pot, and, when the season has become warm enough, the plants should be turned out and treated like Vegetable Marrows or ridge Cucumbers, and, if placed under hand-lights to start them, so much the better. From a bed planted with it, 5 yards long and 2 yards wide, I should be afraid to say how many gatherings were obtained, and by covering with a mat or two at night, it will continue to produce till sharp frost sets in. Wherever Spinach is in large demand I can strongly recommend this; it does not run to seed, and it does not take a large bed to furnish a dish every day from July till December.—John Gough, *Westwood Park, Droitwich.*

Value of Cloches.—Every one who has travelled from Paris to Versailles must have noticed the very extensive use which market gardeners there make of bell-glasses for protecting early vegetables from frost. I have counted several hundred in rows. Why do not our gardeners imitate the French in this matter? I am quite sure that, at any rate, amateurs would do well to use these glasses instead of frames. Let me give my own experience. Last October I took up my scarlet Verbenas and filled a small glazed pit with them. I left home for a month at Christmas, and found everything killed by the severe frost on my return; but I had placed hand-glasses over one or two plants and left them in the ground, throwing some straw over the glasses. These survived the winter, were very early in bloom, and were in every way stronger and better plants than those bought and bedded out in May. Again, I found that newly-planted Tea Roses improved wonderfully by being covered with a glass early in spring, taking care to raise the glass on three bricks placed as supports round the plant; this allowed a free current of air.—H. C. MALDEN, *Brighton.*

Late Varieties of Peas.—Ne Plus Ultra and British Queen, which are usually to be relied on here as late kinds, have, in consequence of the unusual character of the weather, been gathered earlier than usual this season; but Omega, sown quite at the end of June on a warm border is still bearing freely. This is even a better late Pea than its tall prototype Ne Plus Ultra, and it may be sown from ten days to a fortnight later. A portion, at least, of the last sowing should be made in a warm south border, and mulching and occasional waterings will counteract the effect of drought, should the autumn be dry, whilst the additional warmth obtained will cause the pods to fill better.—E. HOBDAY.

Potatoes and Wireworm.—I planted 1 stone of Sutton's Red-skin Flour-ball on loam lying on limestone sub-soil, at an elevation of 550 feet. The results of the crop were—7 stone 4 lbs. 8 ozs. of Potatoes, perfectly free from disease. There were few small ones, and three of the largest weighed 2¾ lbs. The tubers were in nearly every instance bored by wireworm (?), though other Potatoes (Flukes) in the same bed were not touched. What should I do to prevent this in future, and has any other correspondent noticed the same with the Flour-ball? I planted 1 lb. of Snowflake in the same garden, and cut them into nine sets; the produce amounted to 21 lbs. 2 oz., one-third of which were diseased, and we keep picking out one or two fresh cases every time we look them over. Fully one-half the crop are small. The aspect of borders in both cases is S.S.E.—T. R. CLAPHAM, *Anstwick Hall, West Riding, Yorkshire.*

Heavy Crop of Onions.—The Banbury Onion Show, which took place the other day, and which was so successful, brought together a great number of fine Onions. Having noticed the weight given of some of the heaviest bulbs shown there, I have been induced to weigh a few of the Banbury type, which I selected from beds in the gardens here, and I found their weights to be 22, 23, and 24 ozs. each respectively. These are greater weights than any recorded at Banbury this year. The Onion beds here, this season, occupied 440 square yards in all, and the produce is a little over 2 tons—a weight equal to 22 tons per acre. The kinds included the Banbury, White Spanish, James's Keeping, Reading Danvers's Yellow, and White Globe.—G. BEECH, *Castle Ashby, Northampton.*

Large Returns from American Potatoes.—I was induced, by seeing very flattering accounts in THE GARDEN of some of the American Potatoes, to try the four following varieties, viz., Snowflake, Extra Early Vermont, Brownell's Beauty, and Compton's Surprise. I had 1 pound of seed of each. Of "sets" I had—Snowflake, thirty; Extra Early Vermont, twenty-five; Brownell's Beauty, twenty-eight; Compton's Surprise, thirty. These I planted in rows 3 feet apart, and 18 inches between the sets. I am not aware that heavier returns have been made in THE GARDEN, so I give them:—Of Snowflake I had 113 lbs, and Extra Early Vermont 136 lbs. Twelve of the heaviest of Snowflake weighed 15 lbs; the other two were not weighed.—WILLIAM THORBURN, *Castle Semple.*

The Best Sweet Corn.—Every season we plant two or three varieties of Sweet Corn, some for early, and the Stowell's Evergreen for late, use. The variety which gives most satisfaction is one sent out by the Agricultural Department under the name of Brill's Extra Early Sweet. It is much sweeter and more tender than any other variety we have used, and quite early. We have had it ready for eating sixty days after planting. The ears are of large size for so early a variety, and the Corn so sweet that it makes even so good a kind as Stowells' Evergreen seem almost tasteless. We have almost concluded that successive plantings of this best kind will prove more profitable than trying to grow early and late varieties for use through the season.—"Moore's Rural."

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

Late Varieties of Peas.—Mr. Gilbert, of Burghley, remarks (see p. 137) that Veitch's Perfection is good only in some people's hands. As it happens to succeed well with me, I must bear testimony in its favour. I have grown it since its introduction, and find nothing to surpass it for quality and for a late general crop.—H. J. C., *Grimston.*

Clubbing (see p. 379).—I have never tried wood ashes as a remedy for this; but, as they may not at all times be procurable, I would recommend the following plan, adopted by me for twenty years, and which has never been known to fail. It is this:—Take equal parts of soot and fine garden soil, thoroughly mix them with water to the consistency of thin mortar, and dip the plants (I refer, of course, to the Cabbage tribe) in the mixture up to the base of the leaves before planting. This is a safe and never failing preventive of clubbing.—E. B.

LIFE HISTORY OF THE PEAR TREE SLUG.

THE "Potato bug" seems reluctant to cross the Atlantic, and the panic it engendered is dying out; but another insect grievance has appeared in our midst, and seems to demand serious attention. The Pear tree slug is a reality, tangible, palpable, visible, smellable—for it appeals most forcibly to the olfactory organs. Complaints as to the burnt-up appearance of our Pear trees—and, by the way, of our Cherry trees as well—enquiries as to the cause; and a plethora of infallible remedies, with polysyllabic, and, for the most part, unpronounceable names, have found their way into all our advertising columns and wrappers; yet, year after year, the plague seems to increase and spread. My object in penning these notes is to bring the creature face to face with his victims—those who, in the west and south-west of England, annually lose their Pears and their perry through the instrumentality of these insects; for, unless we know our enemy—his appearance, his ways, and his whereabouts—all our attempts to compass his destruction must be futile. In June the mother-fly emerges from the earth in which she had voluntarily buried herself. Her first thought is matrimony; and doubtless her powers of attraction are taxed to the uttermost; but in what manner they are exercised philosophers have failed to discover. Her second thought, or instinct, or duty, is preparing for a family. A word as to her personal appearance: she is always in mourning; even before matrimony she wears the sable garment of widowhood; her head, antennæ, body, and legs are almost entirely clothed in black; her wings, otherwise colourless, wear a blackish shade across their middle. Her native tree in this country is the Sloe. By beating a Sloe bush, at the beginning of June, into a net or umbrella, after the manner practised by entomologists when thrashing for caterpillars, you may obtain some of these little black, and seemingly lifeless, creatures, which are about the size of a grain of Wheat. If they fall into the umbrella—held, of course, upside down—they will roll over and over to the bottom of the concavity, and there lie perfectly motionless; of course their object is to assume the appearance of death, so as to deceive the uninitiated. A great number of insects have this habit of feigning death, evidently with the object of rendering their appearance unattractive, and themselves unrecognisable to those other insects, or animals of any kind, which make living insects their customary food. As though purposely to aid in this life-preserving deception, their bodies are so fashioned that by bending their heads downwards beneath their breasts, pressing their antennæ, legs, and wings closely against the body, and resolutely abstaining from all movement, the whole appearance becomes so inorganic that even the sharp, prying eye of a bird would be deceived, and the delicate, discriminating touch of a spider would fail to detect life under this mask of death. Some insects have a special provision for this manœuvre; as in those many-bladed knives which are the delight of schoolboys and the terror of timid mothers, each of the limbs fits with the greatest nicety into a groove purposely fashioned to receive it. If you examine a pill-beetle (Byrrhus), while it is shamming death in this way, you will find it so compact and pill-like that you are quite unable to distinguish the legs from the body until the creature condescends to crawl, and thus reveals the secret of its structure. Notwithstanding this love of concealment, impregnation and maternity take place with regularity. Then she may be seen in the act of oviposition—on a Sloe-leaf in the hedges, or a Cherry-leaf in the garden, or a Pear-leaf in the orchard—and a serious matter she makes of it. So serious and so intent is she in the performance of this maternal duty, that you may sometimes take her off the Sloe-leaf between your finger and thumb. She will evince no disposition to fly, make no effort to run, but only resort to the expedient of feigning death—an expedient that facilitates her capture rather than otherwise, especially if you hold one hand beneath the leaf on which she is operating, in order to arrest her fall. I need scarcely say that this insect is a member of the great family of sawflies—a family that has long attracted the attention and admiration of the entomologist; nor need I again describe the saw with which all of them seem to abrade the cuticle of the leaf, leaf-stalk, or twig, on which they deposit their eggs. Suffice it to say that the abrasion made by the insect whose history I am relating is of a slightly-curved or crescentic form, and that the egg is laid in this abraded portion. The denuded parenchyma of the leaf thus comes into immediate contact with the under-side of the egg, which is of an oblong shape, and is covered with a leathery shell, capable of considerable expansion as the enclosed larva increases in size. Thus the egg is seen very obviously to grow—a fact familiar to entomologists, but one which ornithologists may be excused for hesitating to accept, seeing how very brittle are the eggs to which they have devoted their best attention. The faculty of growth in the egg-state was known to Linnæus, and has been recorded by all subsequent writers on this tribe of insects. I find the larvæ on the upper side of the leaf, and upon this point differ from

Professor Peek and Dr. Harris, who infer that they are found on the lower side. This want of accord may probably arise from there being several species confounded under one name, and three of them I had named provisionally after the trees on which I found the slug feeding:—Blennocampa Cerasi on the Cherry, B. Pruni on the Plum or Sloe, and B. Pyri on the Pear. I find however, that I am unable to differentiate these in a manner likely to find acceptance with entomologists. I therefore prefer adopting "Æthiops" as a specific name for all our slug-worms, at the same time expressing a feeling of some regret that the word "nigger," the literal translation of Æthiops, should have been applied to the sawfly of the Turnip—a very different insect. Another question of some interest, as regards the geographical distribution of insects, arises as to the identity of slug-worms of Europe and America. There is, however, no necessity to introduce this difficulty to the reader, unless it be to say that the three are so similar that I am unable to separate them.

To proceed with our life-history of the one which feeds on the Pear tree. The eggs continue to grow during thirteen days; at first slowly, towards the end of that period, more rapidly. On the fourteenth day, according to Professor Peek, the young grub emerges from the egg. I have no doubt this statement is correct as regards the United States, but I cannot say that I have verified it in England. On first emergence they are white or colourless, but in a very short time they are covered with a black, brown, or olive-coloured jelly, of offensive scent and disgusting appearance. It accumulates on the surface of the skin, until the creature becomes a dark mass without apparent life, or even organisation. The slugs are first observable at the beginning of July—then, of course, very small; and a succession continues to make its appearance, and to infest the leaves of Sloe, Pear, Cherry, or Service, throughout August and September, and often far into October. They glide with extreme slowness over the surface of the leaf, partly by means of claspers, a pair of which are attached to the underside of every segment, except the first, fourth, and thirteenth. These claspers seem to possess little of that prehensile property which is so striking a character of the claspers of the caterpillars of moths and butterflies. In addition to the claspers, fourteen in number, which are situated on the underside of the abdomen, there are six articulated or thoracic legs. These, as well as the head, are invisible, except when the creature is crawling or feeding; indeed, these so-called organs of locomotion are concealed by the body and its concomitant slime or jelly, and their office seems to devolve on the annular segments of the body, which, by alternate dilation and contraction, effect the desired object. The body is somewhat swollen at the anterior, and gradually attenuated towards the posterior extremity, which is slightly raised—a character frequently observable in this family of insects, as well as in the cuspidate Lepidoptera. During the greater part of their larval existence, these slug-worms seem quite destitute of that rambling propensity which is commonly observable in the larvæ of Lepidoptera; indeed, in them, rambling would be useless, since the upper cuticle and the parenchyma of the leaf, which constitute their principal food, are always within reach without the trouble of moving. These they consume in a very methodical manner, leaving the lower cuticle entire; this very soon dies, withers, and turns brown, making the whole tree look as though covered with dead leaves.

The process of exuviation, or casting of the skin, obtains in this as in all other larvæ. Before it is performed the little slug wanders about the leaf with more freedom of movement than usual; it is no longer glued, as it were, to the cuticle. After the skin is cast the slug may be seen licking its old coat, an occupation which seems particularly enjoyable. The mandibles are also incessantly and actively at work; yet the cast clothing does not entirely disappear, although it is certainly diminished; the anterior part seems to be eaten, the hinder part neglected. This observation is made in consequence of the well-known propensity of certain lepidopterous larvæ to make a meal not only of the egg-shell from which they have just emerged, but also of the garments, which are from time to time thrown aside in favour of a new suit. The changing of the skin takes place in America five times. I cannot say that five is the number of ecdyses in England, as I have not counted the new suits worn by English slug-worms. At the last change the slug loses its jelly-like surface, and appears in a neat yellow skin without any viscidity. This occurs nearly a month after their first escape from the egg-shell; the head and segmental divisions are now quite as perceptible as in any other species of saw-fly. Henceforward it eats no more, but crawls down the trunk of the tree and buries itself in the earth; at the depth of 3 or 4 inches, each forms a neat little oval cell, in which to undergo its final changes to a chrysalis and perfect fly. This cell is formed of earth, but is lined and intermixed with liquid glue secreted in the stomach, and ejected by the mouth. This liquid glue is obviously nothing more than silk in a liquid state,—a preparation with which the larva of nearly every moth, butterfly, hymenopteron, or coleopteron, is provided more or less abundantly, and one which is always applied to the fabrication of a cocoon, cell, or covering of some kind in which to undergo its transformation. When this gum has once hardened, and assumed its final state of leather-like toughness, it is insoluble in water, and forms a perfect protection from wet. In this cocoon the grub resides during the remaining portion of the autumn, also during the entire winter, and until the following summer; it is contracted in size, but otherwise unchanged in character. Its change to a necromorphous chrysalis does not take place until spring has far advanced, and then that state is but of short duration; fourteen or twenty days suffice to mature the perfect insect, and at the expiration of this it emerges from the tomb, and the same cycle of existence is recommenced and recompleted as before. A word remains to be said about the supposed remedies; and here I must confess that I am at fault. In England we trust too much to the inventive genius of chemists and druggists. Whenever these gentlemen offer for sale a preparation which they have previously called by some cacophonic name, the little republic of cultivators is delighted to buy, delighted to be taken in, and delighted to grumble at the inefficacy of the nostrum; and so ends the amusing comedy. In America it is somewhat different; our Transatlantic cousins, having made themselves thoroughly acquainted with the enemy, have had recourse to practical measures with a view to compass his destruction. Sand, ashes, lime and powdered hellebore, have been tried with great energy; but the last only has been found valuable. The results of these experiments were recorded in the September number of the "Canadian Entomologist" for 1870.

As soon as the slugs were observed at work in spring they were treated to a plentiful supply of dry sand, thrown up into the higher branches with a shovel, and over the lower ones through a sieve. The sand stuck thickly to the slimy skins of the grubs, completely covering them. Supposing the enemy conquered, no notice was taken of him for some days, when he was found to have recovered from the assault, and to be as vigorous as ever. It was then determined to test the sand experiment on a smaller scale. Several small branches of Pear trees were selected and marked, on each of which were six slugs, and these were well powdered over, and completely covered with sand. On examining them it was found that they had shed their sand-covered skin, and had crawled out as slimy as before. The sand was applied a second and a third time, with similar results. Ashes were next tried in the same manner as the sand had been, and were found equally ineffectual. Ashes and sand being both useless, the slugs were treated to a strong dose of hellebore and water, which soon finished them. On the 13th of August a branch of another Cherry tree was plucked, on which there were sixty-four slugs. This branch had only nine leaves, so it may be supposed it was thickly inhabited. A dose of hellebore and water was showered on them, of about the usual strength—an ounce to the pailful—when they soon manifested symptoms of uneasiness, twisting and jerking about in a curious manner. Many died during the day, and only six poor sickly-looking specimens remained alive the following morning, and these soon after died.

The following year the mischief-makers were preparing for a second descent. On the 29th of July, when going through the orchard in the afternoon, the new brood of flies were found in the greatest abundance, resting on the young leaves and on those portions of green which still remained on the leaves partially eaten by the last brood. They were congregated, however, most thickly on those trees where green leaves were very abundant. On disturbing them they would fall to the ground, with the antennæ bent under the body, and the head bent downwards. Sixty specimens were caught; hundreds might have been taken. By the last week in August the second brood of slugs were hatched, and those trees which had previously escaped were all more or less infested. A raised platform was rigged up in a one-horse cart; on this was placed a barrel of water in which a pound of powdered hellebore had been mixed; and from this elevated stand the mixture was showered lightly on the trees from the rose of a watering-pot. It was astonishing how quickly the trees were cleared by this method; scarcely a slug could be found on a tree the morning after the application had been made; and 10 lbs. of hellebore, with five or six days' work of a man and horse, served to go over the whole ground. Powdered hellebore has been successfully tried in England on a small scale; but there is an apparent difficulty in raising the water to a sufficient height to be of much service among the giant Pear trees of Worcestershire and Herefordshire. Still I would by no means discourage the attempt. From a scientific point of view it would be interesting to ascertain the identity or otherwise of the "slugs" of Europe and and America, and to ascertain also whether the slugs had migrated, either naturally or through the instrumentality of man, from the old to the new continent, or the reverse. It is stated, and doubtless on good authority, that there are two broods of this mischievous insect in America. At present we know of but one in Britain. Let us hope that a second may not hereafter reveal itself.—" Entomologist."

NEW PLANTS, &c.

Michelia lanuginosa.—This is described by Wallich as a lofty tree in Nepal and the Himalayas. It is nearly related to the Magnolias, and closely resembles them in leaves and flower. The oblong leathery foliage is of a glaucous colour and downy beneath. The flowers are of a creamy-white colour, and fully 4 inches in diameter. The plant was sent to Kew twenty years ago from Sikkim, and was planted out in the temperate-house ten years ago, where it first flowered in May of the present year. It is figured at t. 6,179 of the " Botanical Magazine."

Typhonium Brownei.—This is a curious purple-spathed Aroid, with bright green ternate leaves. It was introduced to our collections by Mr. William Bull, who imported it from Rockhampton, Queensland, and in whose establishment at Chelsea it flowered in April last. It is of but little value as a garden plant, but highly interesting as a botanical curiosity. " Botanical Magazine," t. 6,180.

Columellia oblonga.—A native of Ecuador. Only two species are known, both natives of the Andes. The present species is found at an elevation of 9,000 to 13,000 feet, and is very abundant in the mountains above Quito. It is a shrub or small tree, the younger branches being clothed with oblong, lance-shaped, serrate leaves of a bright green colour, and bearing terminal clusters of golden-yellow flowers, each the size of a shilling. It was raised from seeds sent by Dr. Jameson to Mr. I. Anderson Henry, who forwarded a young plant to Kew in 1870, which flowered in January of the present year, the plant having been grown in a cool greenhouse temperature. It is a showy plant, well worth culture as a greenhouse shrub. " Botanical Magazine," t. 6,183.

Double-flowered Chinese Plums.—Two double-flowered varieties of this ornamental flowering shrub, one white the other rose-coloured, were figured in the August number of the " Revue de l'Horticole Belge," one with bright rosy flowers and the other a pure white variety. Both are varieties of Prunus sinensis or Chinese Plum, and are very valuable as hardy flowering shrubs in this country, where they flower as dwarfs or standards in April or May. They are easily multiplied by grafting on the Plum or Myrobalan stock, using for scions the semi-herbaceous branches, which may be inserted either by whip or cleft grafting. Plants in pots are easily managed, and are very useful for greenhouse and conservatory decoration in the early spring months, as the treatment given to Spiræas and Deutzias suits them admirably.

Araucaria Rulei.—This is a very elegant ornamental tree, a native of New Caledonia, where it grows on the summits of the mountains. In stature it does not equal A. excelsa, but in elegance it is surpassed by none. The lower branches have an elegant drooping habit, and are clothed by four rows of hard, sharp-pointed, bright green, closely imbricated leaves. The fruit is unknown. M. Carrière believes that this and other New Caledonian species are polymorphous and difficult to determine with certainty. An excellent figure is given at plate cciv. of " L'Illustration Horticole." Its comparatively dwarf stature makes this a valuable addition to the vegetation of the cool conservatory or winter garden.

A New Source of Caoutchouc.—Just as the world was beginning to be told that the supply of this useful material was about to fall short by reason of the destruction of the tree which produced it, and the thriftlessness which failed to keep up the supply by artificial cultivation, we are also informed of the fact that an entirely new source of supply has been discovered in Burmah, in a creeping plant whose botanical name is Chavannesia esculenta. The plant is very common in Burmese forests, and is cultivated by the natives for the sake of its fruit, which is said to have an agreeable acid taste, and to ripen at a season when Tamarinds are scarce.

Apples of Sodom.—Will any reader of The Garden kindly state what this fruit is ?—E. L. [Murray's " Hand-book of Syria " says, with reference to this—" Here, beside the rivulet, a tree still grows with a singular kind of fruit. Its Arab name is Osher, and botanists call it Asclepias gigantea. The stem is 6 or 8 inches in diameter, and the height of the tree is from 10 to 15 feet. It has a greyish cork-like bark, and long oval leaves, which, when broken off, discharge a milky fluid. The fruit resembles a large smooth Apple, hanging in clusters of two or three, and has a fresh blooming appearance ; when ripe it is of a rich yellow colour, sufficiently tempting to the thirsty traveller. But, on being struck or pressed, it explodes like a puff-ball, leaving nothing in the hand except the shreds of the rind and a few dry fibres. It is chiefly filled with air. In the centre a slender pod runs through it from the stem, and this is connected by delicate filaments with the rind. The pod contains a small quantity of fine silk and seeds. The Arabs collect the silk and twist it into matches for their guns, preferring it to the common match because it burns freely and without sulphur."]

OBITUARY.

We have to announce, with regret, the death of Dr. William Plant, an event which took place at his residence, Plantation, Monkstown, on the 23rd ult. Few names were more familiar to florists than that of Dr. Plant, associated, as it has been, for more than half a century with the most successful cultivation of his three specialities—namely, Auriculas, Carnations, and Tulips. As a grower of the first-named, in particular, he had few, if any, equals, certainly no superior. To see his Auricula frames and, above all, his Tulip beds, in their flowering season, was a sight worth going a long way to see. Roses, also, he was fond of, and grew them successfully; but the Auricula, Carnation, and Tulip were his pets, and, in the few leisure hours which he could snatch from a large professional practice, he found his most agreeable relaxation in the companionship of his favourite flowers. Dr. Plant was, we believe, at his death, the oldest member of the Royal Horticultural Society, and was for more than forty-five years a member of its Council. He was eighty-five years of age.—" Irish Farmers' Gazette."

Mr. W. T. Osborn, second son of the late Mr. Thomas Osborn, of the Fulham Nurseries, died of typhoid fever at Erfurt, on the 27th of last month ; he was studying in MM. Benary's nurseries. We are sure that many will sympathise with this family in the great losses from death which it has lately sustained.

" Martin Doyle."—The Rev. William Hickey, Rector of Mulrancan, near Wexford, in Ireland, died on the 24th of October, aged eighty-eight. He did much useful work for the advancement of rural economy, and was the author of many useful cheap volumes on subjects connected with the cultivation of the soil.

The death is announced at Angers, at the age of seventy-two, of M. Boreau, known as the author of the useful " Flore du Centre de la France," and as a general student of European plants. He knew Sedums particularly well, and was long the superintendent of the Botanic Gardens at Angers.

Gymnothrix latifolia—A few days since, I saw this plant growing very strongly at Mr. Ware's Nursery, at Tottenham. The specimen was more than 6 feet in height, and was turned out of a 48-pot last spring.—I. G. N.

The Darlingtonia at Dublin.—By a mistake this was alluded to as growing out-of-doors at Glasnevin last week. It is cultivated in a warm greenhouse. The Darlingtonia is also now grown very successfully in the College Botanic Gardens, in a cool house and in peat soil kept very moist.—V.

Fieldia australis.—This is a curious and beautiful Australian Gesnerwort which rambles over the stems of some of the Tree Ferns at Glasnevin. In habit it somewhat reminds one of the Creeping Fig, but Dr. Moore informs us that it bears flowers somewhat like those of a Fuchsia. This being so, it is a plant of great importance for indoor gardening of various kinds.—R.

Pleione præcox.—This pretty little Indian Crocus is one of the most attractive of all Orchids. The flowers are borne on short, one or two-flowered scapes from the base of the rugose, purple-spotted pseudo-bulbs, and are of a clear rosy-lilac colour, with a yellow blotch on the lip. It is in flower at the present time at Kew.—F. B.

Lycaste macrophylla.—This species is now flowering freely at Kew. The flowers are each about 3 inches across the sepals, and are apple-green in colour, suffused with purplish-brown. The petals are pure white, and the lip is rosy-purple, having a white fringed margin. In habit, the plant closely resembles the yellow-flowered L. aromatica, and the flowers are delicately perfumed.—B.

Lilium neilgherrense.—I am much obliged to Mr. Elwes for pointing out the mistake which I unintentionally made in stating that this Lily was found on the Himalayan ranges. I meant, as may be inferred from the previous passages, to write Wallichianum (see p. 340). I trust that other Lily growers will follow Mr. Elwes' example, and give us the benefit of their experience as regards Lily culture.—Alexander Wallace, *Colchester*.

Salvia splendens as a Bedding Plant.—This makes a grand mass of colour when planted in large beds, and, with a dense background of evergreens, the effect is particularly good. The green and the variegated leaved kinds are equally effective. For two months, beds have here been full of its flowers, and will remain so until they are destroyed by frost. Large single specimens lifted about this time, make fine plants for conservatory decoration during winter.—H. J. C., *Grimston*.

The Lindley Club.—The next quarterly meeting of this club (late the Horticultural Club) will take place at Simpson's, 103, Strand, on Wednesday, November 10th, at 4 p.m. A meeting will be held, at which Mr. D. T. Fish, Hardwicke House, Bury St. Edmunds, will read a paper on " Suggestions for forming a National or United Kingdom Horticultural Society," and a discussion will follow. At 6 o'Clock, the members of the club will dine together, according to their usual custom.

Alpha Potato.—My observations in reference to this Potato were the result of my own experience, and also that of what I had heard of its character this year at Chiswick, and likewise from many persons who had grown it. I saw samples of it exhibited at Alexandra Park of American growth that were very good, but no such tubers have been produced, as far as I know, in this country. Thinking that the past season has been too cold for so tender a variety, I shall grow it again next year ; but, from what I have seen of it, I believe that it is better suited for frames and for pot culture than for growth out of doors.—A. Dean.

No. 208.] SATURDAY, NOV. 13, 1875. [Vol. VIII.

"This is an art
Which does mend nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

TUBEROUS-ROOTED BEGONIAS.

As I have, during the summer and autumn months of this year, grown in the open air, with the greatest success, all the finest tuberous-rooted Begonias in cultivation, I have thought that some account of them, together with the names of their raisers, might prove both interesting and useful. Everyone who has seen them here this season has assured me that they had no idea that anything so beautiful existed in this family or could be so successfully grown in the open air, and nearly all took down the names of the most striking varieties, and expressed their intention of procuring plants of them for next season. Of the thirty varieties which I have grown this year, Mr. Van Houtte, of Ghent, may be credited with the raising of fifteen, Mr. Lemoine, of Nancy, with ten, and Messrs. Veitch, of Chelsea, with five. Of these, I shall proceed to speak, as nearly as possible, in the order in which they were sent out by their raisers. In the year 1873 Mr. Van Houtte sent out half-a-dozen named varieties, of which only one, named Emeraude, was really good, and this still, in my opinion, retains its place as a really first-class variety, both for its bushy compactness of habit, and the great freedom with which it produces its handsome deep rose-coloured flowers up to the end of the year. At the commencement of the season, it has the fault possessed in a greater or less degree by several of these Begonias of dropping its male blooms in the bud before they open, but as the season advances it quite loses this drawback, and all the blooms expand perfectly and remain an unusually long time in full beauty. In 1874 Mr. Van Houtte sent out eight varieties, named Charles Raes, Jules Hye, Président Schlachter, Charles Vermeire, Charles Van Eckhaute, Madame A. Lemonnier, F. Marchand, and candidissima, of which the first named is admitted by all who have seen it, to be the best; to me this pleasure has, as yet, been denied, as, of the two bulbs sent to me, one died and the other pushed too late to bloom this season. Jules Hye is an extremely pretty variety, of upright branching habit, producing a quantity of medium-sized flowers of a bright rose colour. It is, however, singularly difficult to propagate, which, fortunately, can be said of hardly any other variety of similar habit of growth. President Schlachter is also well worth growing, having finely-shaped flowers of a peculiar shade of colour, as yet quite unique and difficult accurately to describe, but which Mr. Lemoine pronounces to be deep salmon. Of the remaining five varieties little need be said, save that candidissima in nowise deserves its name, as it is by no means a pure white, but rather of a greenish shade, and it is also a small and thinly proportioned flower. F. Marchand is a rather pretty but somewhat delicate constitutioned variety, resembling Henderson's Mrs. Masters, and better suited for greenhouse culture than the open air. Charles Vermeire and Madame Auguste Lemonnier are both different shades of rose colour, but of indifferent form, and not sufficiently continuous bloomers, and Charles Van Eckhaute is dull, pale, and utterly worthless. In the six varieties which he has sent out this year, however, Mr. Van Houtte has been more fortunate, as three of them are quite first class, two of the remainder very good, and the sixth, only for an unfortunate fault which it has, would also be a plant of considerable merit. These varieties are named Paul Masurel, perhaps the finest Begonia which I have yet seen, of fine, bold, vigorous habit of growth, with handsome foliage, producing blooms of a fiery orange, and of nearly double the size of those of Messrs. Veitch's fine variety Vesuvius (a novelty of last year); they remain, too, for a long time expanded, and are produced in constant and regular succession during the entire season. F. Lecointe is also an exceedingly beautiful variety, by some admired almost more than the last-named; it produces flowers of immense size and substance, and of a lovely deep clear shade of rose colour; in shape they resemble those of Lemoine's rubens, and are produced on long pendulous foot-stalks, remaining a long time in beauty. Friedrich Siesmeyer is a lovely variety of much less vigorous habit of growth than the two last-named kinds; it has very handsome dark foliage, and produces very large blooms on pendulous foot-stalks of, perhaps, the deepest shade of crimson that has of late been seen in these plants, reminding us in shape of bloom of Messrs. Veitch's Stella, but altogether of more pendulous habit, and with flowers about twice as large as those of that variety. Massange de Louvrex is also a plant of less vigorous habit; it has blooms of an exceedingly brilliant and beautiful orange-scarlet on pendulous foot-stalks, and produced in great abundance towards the end of the season. A. Krieger is a variety of somewhat delicate habit of growth, with large blooms of a bright orange-red, said to be striped, but in reality only faintly veined or lined with a deeper shade of crimson. Léon Plisson, in habit of growth resembles Paul Masurel, and in form and colour of bloom the old boliviensis; its blooms are, however, of about double the size of this last-named variety, and it would be of considerable merit and value if it did not unfortunately drop nearly all its male flowers in the bud state, only about one in ten ever fully opening, and the female blooms are peculiarly thin and ragged in appearance. Mr. Van Houtte now offers a seventh variety, named Mademoiselle Zimmermann, which it is to be hoped may turn out to be something distinct and good. The ten varieties received from M. Lemoine, of Nancy, consisted of two new hybrids, sent out for the first time this season, named Corneille and Molière, and eight older varieties, all of his own raising, and the result of careful crossings of some three or four varieties with which he originally started as parents of his present fine strain of named seedlings, and consisting of Veitchii, Pearcei, cinnabarina, and Sedeni. Of the two novelties above-named the first, Corneille, is a variety of great beauty and distinctness, producing deep rose-coloured flowers on peculiarly rigid and upright foot-stalks, which Mr. Lemoine says sometimes come semi-double; the second, Molière, though exceedingly quick-growing and free-flowering, is not of a sufficiently distinct or pleasing colour to make it, in my opinion, worthy of cultivation in a select collection of good Begonias. The remaining eight varieties may be divided into two distinct classes—the low-growing soft-wooded class, difficult to propagate by cuttings, to which belong Corail Rose, C. Glijm, Mastodonte, and Leviathan, and the comparatively tall-growing and hard-stemmed class, which propagate as easily by cuttings as Zonal Pelargoniums, to which belong Etna, Rubens, Velours, and Camoëns. The first mentioned of these eight varieties Corail Rose, is peculiarly fine and distinct in every way, resembling its parent Veitchii in habit of growth, but with much larger foliage, of a deeper shade of green, and conspicuous for a metallic lustre or sheen, which makes it very striking and ornamental. The blooms are produced in triads on the tops of tall stout foot-stalks, well raised above the foliage, and of the deepest and most glowing shade of crimson-scarlet—it is, in fact, one of the handsomest of the whole set. C. Glijm is also a very beautiful variety, with distinct and glaucous foliage, and producing, throughout the whole season, a profusion of medium-sized orange-scarlet, square-shaped blooms, well raised above the foliage. Mastodonte, though, according to the raiser, very fine with him the first year, and blooming abundantly, has, from some unknown cause, sulked ever since; and, though apparently growing well, has hardly bloomed at all. The foliage is round and glossy, like that of Veitchii; and the blooms when produced are of a deep rose colour, and of good form and substance, resembling those of Van Houtte's Emeraude. Leviathan may be described in the same terms as those applied to the last named of Van Houtte's varieties, Léon Plisson; its colour is most clear and brilliant, but it hardly ever opens a male flower, dropping them all in a bud state. Etna is a most beautiful free-growing and profuse blooming variety—one of the most brilliant and ornamental of the whole family, literally covering itself with its bright orange medium-sized blooms from the middle of May to the middle of November. Rubens is also a very beautiful kind, producing large blooms of a deep rose colour, of excellent form and substance, and, in fact, only surpassed in its own way by Van Houtte's fine variety, F. Lecointe, which it much resembles in colour and shape of bloom, though, of course, smaller. Velours is chiefly remarkable for its fine deep scarlet colour, in which shade it stands unique at present. Its blooms are of medium size, and in habit of growth it is decidedly less vigorous than the others of its class; but it is well worth including in every collection. Camoëns is the latest to come into bloom of all the varieties known to me, and, in fact, cannot be counted on much before the beginning of September; but when it does commence to open its square-shaped, medium-sized, rosy-orange-shaded blossoms, it produces them in the greatest profusion up to the middle of November, and is very valuable for the decoration of the late autumn conservatory. Of the five varieties sent out by Messrs. Veitch I need speak but briefly; although all of them are distinct and beautiful in themselves, their glories pale beside the larger blooms of the more vigorous and floriferous habits of their foreign brethren. Vesuvius is certainly the finest of them, and may be described as a smaller-flowered and less free-blooming form of Van Houtte's magnificent Paul Masurel, which quite throws it into the shade. Stella, which came out with it, and was then valued for its deep shade of colour and freedom of bloom, has been also eclipsed by Van Houtte's F. Siesmeyer, which has all its merits and flowers almost twice its size, and of more perfect shape. Neither of the two new varieties sent out this year—by name Model and Excelsior—are, in my opinion, any advance on those of previous seasons, but rather a retrogression, as the first is only remarkable for the shape of its bloom, which is well rounded and cupped, but the colour is dull and unattractive; while the second, if desirable for its brilliancy of colour, is a thin poor flower, both in size and shape and is very inferior to some of the foreign varieties. As to Veitchii, to which we are indebted as parent for so much of the fine blood running through the veins of some of the best Continental varieties, it will always, I hope, hold its own, and claim and obtain a place in the decoration of the hardy rock-work garden, as it apparently is able to bear the rigours even of the London winter without suffering ought therefrom, and its brilliant orange-scarlet blooms, so well elevated on their erect foot-stalks over its round and shining foliage, will always be admired—even by those fastidious growers who profess greater admiration for some of its larger-flowered hybrid descendants. For next season Mr. Lemoine announces three novelties selected from a large number of seedlings, and named—Eldorado, a clear chrome-yellow, the result of a cross between Pearcei and Sedeni, which should be a great acquisition if of good form and substance; Wilhelm Liebnecht, with brilliant orange-vermilion flowers of the largest size; and Wilhelm Pfitzer, with rich carmine flowers with solferino centre, said to be of great beauty. Of these I hope I may have a good account to give when I have seen them bloom. W. E. Gumbleton.

Belgrove, Queenstown, Co. Cork.

Eulophia guineensis.—This is one of the rarest and most beautiful of all terrestial Orchids, and is a native of west tropical Africa. In general habit of growth its pseudo-bulbs and leaves resemble those of a Bletia, while the large rosy-purple and white flowers are borne twenty to thirty together on a slender erect or arching scape 2 to 3 feet in height, like those of the Gladiolus. The lip is the most attractive portion of the flower; it is trowel-shaped, fully an inch in width, and is continued behind into a long curved greenish-coloured spur. The lip is rosy-purple, shading into white behind, and has a rich crimson-purple blotch on the disc. It grows freely in a warm plant stove, and has been exhibited by Mr. W. Bull. This plant may now be seen in bloom at Kew.—B.

Small Connecting Pipes.—It is evident that something is materially wrong with the pit pipes referred to by "G. H." (p. 386), if they heat no better than he describes when the valve is turned three-parts off the Vinery. If the pit contains much piping, it would be better to have larger connecting pipes. The larger the flow and return, the quicker the circulation. I have a boiler here connected by means of pipes quite unfit to convey the water fast enough to get up a good heat, even when the water in the boiler is boiling. Much inconvenience is often experienced from an air-pipe or valve being deficient, or getting choked, or a dip in the flow without an air-valve at the rise again, such appliances being essential to the proper heating of pipes.—R. B. Fuller, *Highgate, N.*

NOTES OF THE WEEK.

—— Mr. Atkins informs us that the Greek varieties of the Ivy-leaved Cyclamen (Cyclamen hederæfolium græcum) are now very beautiful in his garden at Painswick. They begin to flower at the end of September and continue to bloom till Christmas. Some of them are fragrant, and the foliage is often large and handsome. The leaves come up in September with the flowers, and appear to suffer in severe frost, but recover with the return of mild weather.

—— A group of hybrid and cross-bred Dracænas, exhibited at South Kensington on Wednesday last, by Mr. John Wills, excited considerable attention among horticulturists. They were the result of the hybridising skill of Mr. Bause, manager of Mr. Wills's Anerley Nursery, and, on account of their striking beauty, were awarded the Society's gold medal, a distinction which they well deserved.

—— Mr. G. F. Wilson, of Heatherbank, Weybridge Heath, sends us fine specimens of the noble Doyenné du Comice Pear, grown in pots in his orchard-houses. They are somewhat larger than usual, but it may be well to add that this, according to our notion, the finest of all the recent Pears, attains perfection in the open air in many parts of England. The specimens sent us by Mr. John Garland, from Killerton, were larger than many good Continental samples.

—— It is interesting to notice at this season the abundance of easily-obtained native "greenery" that comes into Covent Garden for use in floral decorations. We allude to the fronds of common Ferns, the leaves of the common Wood Mallow, of which great numbers are sold in bundles, bundles of fresh Ivy leaves, sprays of Yew, &c. The purchase of these in quantity by the florists suggests the desirability of amateurs more frequently using similar materials in house decoration.

—— At the last meeting of the Royal Horticultural Society Messrs. Veitch & Sons exhibited a remarkably choice and effective group of new and rare hybrids raised in their nurseries within the last thirty years. Among them were Orchids, Pitcher plants, Rhododendrons, and Dracænas, to nearly all of which, at one time or other, first-class certificates have been awarded, and on this occasion they received, and deservedly, a gold medal.

—— Senecio pulcher is now in great beauty in Mr. Atkins's garden at Painswick. It is a fine autumn-blooming plant. At Painswick it grows about 1½ feet high. It was introduced by Mr. Tyerman, who furnished the plant which was figured in the "Botanical Magazine."

—— Such of our readers as take any notice of the preserved Peaches now often to be had in our shops may be interested to learn that in the city of Baltimore 17,000,000 cans of Peaches were "packed" this season. There are between forty and fifty houses in the business, and these employ between 1,500 and 2,000 hands, chiefly women and girls.

—— Permitting Channel Island growers of fruit to compete with our own, at the great autumnal flower show, is productive of no good. The Channel Island growers have such great advantages in their climate that it is a somewhat farcical proceeding to expect English cultivators to compete with them as regards size and colour of fruit. Besides, it is notorious that their produce for exhibition is picked market fruit.

—— In town gardens, Pyracantha japonica is now one of the most attractive of all wall plants. In the Royal Horticultural and also in Kensington Gardens, this plant is now the admiration of all who see it. Cratægus Aronia, in Kensington Gardens, is also just now strikingly beautiful, as is likewise the crimson-fruited Cotoneaster frigida, which, as a town tree, ought to be more extensively planted than it is.

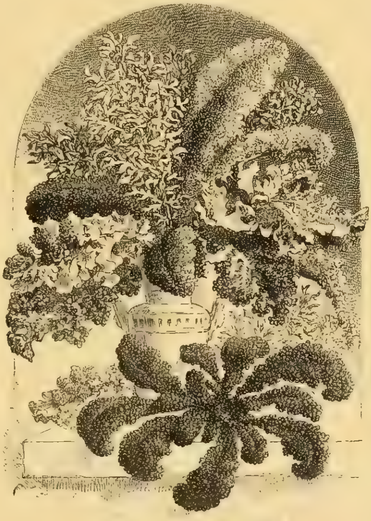
—— The Chrysanthemum season having again come round, many excellent exhibitions of this useful autumn flower may be met with. In the Royal Exotic Nursery, Chelsea, there is just now a fine show of large-flowered and Japanese varieties. In the Temple Gardens, too, the Chrysanthemums are now at their best; and in Victoria Park Mr. McIntyre has filled a tent 100 feet in length with well-grown examples of these flowers, a show of which, contributed by Mr. Cutbush, may likewise now be seen in Alexandra Park.

—— A splendid plant of Vanda cœrulea was exhibited at the Royal Horticultural Society's Exhibition on Wednesday last. This plant has been exhibited at every November meeting of this society for the past three years, and was figured and described in The Garden, Vol. VI., p. 43. It was exhibited in 1873, bearing about thirty flowers; in 1874, when again exhibited, it bore five spikes and sixty flowers. This year it bears five spikes and sixty-seven flowers. It has been grown by Mr. W. Smith, gardener to Mr. C. Lane, Badgemore, Henley-on-Thames, and is a remarkable instance of what may be effected by means of skilful cultivation.

THE FLOWER GARDEN.

KALES FOR FLOWER GARDEN DECORATION.

The more beautiful kinds of variegated and curled Kales form useful winter ornaments for the flower garden, and more especially for filling outlying beds or borders on the lawn at some distance from the mansion. There are several races, or "strains," of curled and variegated Kales, Melville's being one of the best, while some prefer what is called the "triple curled perennial" sort, which is said to be a cross between the "Perennial Woburn Kale" and the "annual variegated" variety. In colour these plants vary from white and creamy yellow through all the shades of rosy-lilac to a deep purple, while in form some varieties, such as the Palm tree Kale, or some of the best forms of curled Kale, are very graceful, and even the green forms of these deserve a place either in beds or isolated masses along with the variegated kinds. Kale seeds should be sown in nursery beds during the summer, say either in June or July, and when the seedling plants are large enough they should be transplanted into rather poor soil, which, by somewhat restricting their luxuriance, induces them to sport into different shades of colour. Much larger quantities should be transplanted than are required for decorative purposes, as all seedling plants do not develope colour variation. Late in the autumn, or after the bedding plants have been cleared off, all the best forms of Kale may be removed from the reserve ground and planted out according to their colour and size, care being taken to transplant with good balls of earth, and to tread them gently but firmly in their new quarters. Some fail to succeed with variegated Kales, by not planting them out in the beds early enough, and the sooner this is done after the ordinary bedding plants are removed the better, before the earth has wholly parted with its summer heat. Our illustration shows some of the forms assumed by these plants; but their chief beauty consists in their colours, which, when lit up by gleams of winter sunshine, are certainly very beautiful at a time when bright colours of any kind are sure to be appreciated. They can either be used alone or grouped along with the Conifers and other dwarf shrubs used in filling up the bare patches of earth left after the summer display of bedding plants is over, and their prevailing colour being lilac or lilac-purple, it follows that golden-leaved shrubs, such as variegated Hollies, Euonymus, or Thujas, are most effective for contrasting with these plants, and to these Golden Yews and Box may be added for the sake of variety. B.



Variegated and fine-leaved Kales.

PREPARING FOR SPRING.

Spring flowers always have special charms. The first Primrose, the earliest Crocus or Snowdrop, even the precocious little Daisy, are all regarded with intense interest and favour—heralds, as they are, of another season of flowers. The chief interest attached to spring gardening is the fact that it seems to open up to us a new floral world. What an infinitude of material it brings to the surface! Double Daisies, single and double Primroses, Polyanthuses, Violas, and Pansies; Arabis, Aubrietias, Alyssums, hardy Primulas, Saxifrages, Wallflowers, perennial Cheiranthus, Iberis, Anemones, Myosotis, Sedums, hardy annuals of kinds, and innumerable plants, all of which, if cultivated and properly grown for the purpose, will produce masses of colour and charming effects. To the lover of spring flower gardening how welcome is the time when the tender exotics of the summer bedding are sent into their winter quarters, and the beds are ready for winter planting! What an additional pleasure does this labour bring in the knowledge that, whilst in gardens where there are no spring flowers, the beds will be flowerless for the next seven months, in those where spring flower gardening is carried out not only will the beds be full all the year round, but the blooming period will begin in March, and thus add three months to the ordinary floral season. The late rains have not only got the soil into capital order for planting, but all sorts of spring flowers are recovering apace from the effects of the autumn drought, and are now pushing up strongly, so that the work of separating and increasing the stock may begin at once. All kinds of Primroses, single and double, and Polyanthuses, lost their foliage in a sad fashion under the influence of hot suns; but their powers of growth are so great that in a few weeks they will be as vigorous as ever. To make sure of scarce kinds, they should be at once lifted, cut up into single crowns, and potted up into small pots. They should then be placed in a cool frame, where they will thrive and be well rooted, ready for turning out early in March. The Primrose is the queen of spring flowers—a universal favourite with all, and the new, richly coloured forms are like so many gems set in a green groundwork. Pansies and Violas will also need immediate attention, as these will admit of being pulled to pieces, and will furnish plenty of well-rooted plants. These, put out in rich soil, will flower early and produce masses of gay colours. Daisies also now require the same treatment, for no spring flower garden is perfect without a sprinkling of these "wee modest flowers," the variegated kinds, especially, being very striking all through the dull winter months. Spring flower gardening is not essentially of the "bedding" order; on the contrary, it may be done in any fashion, just as may best suit the taste of the operator; but spring flowers are essential to the perfect enjoyment of any good garden, and it is only those who have become familiar with them that can fully realise the inestimable pleasure which they afford. Where spring flowers are not used, and it is desirable to give flower beds a cheerful appearance during the winter months, they should now be filled with various hardy plants which have been kept in store for that purpose. D.

SUB-TROPICAL PLANTS.

"N. H. P.'s" enquiries (p. 368) as to whether Aralias are easy to grow and keep through the winter may both be answered in the affirmative as regards papyrifera and Sieboldii, the latter being quite hardy in some parts of England, whilst papyrifera is sufficiently so for the roots to live out during the winter if the beds in which they are growing are supplied with a good coating of dry Bracken or half-rotten leaves. It is, however, the best plan to take them up in the autumn so as to preserve the heads entire; and, if this be done before they become damaged by the frost or autumn gales, they will be found valuable subjects for indoor decoration during the winter. If, however, they are not wanted for that purpose, and there is not the convenience of glass room in which to winter them, they may be safely stored in any dry cellar or shed from which frost can be excluded. Although they will lose their leaves in such positions, the stems will, in most cases, survive; and, by placing them in a warm house in the spring, they start away all the more vigorously for the rest they have received. In taking them up great care should be exercised in preserving the large fleshy roots, as the stock can be increased to almost any extent by cutting these up into short lengths and placing them in sandy soil in a warm house or cutting-frame, where they soon break and form fine plants. Aralia Sieboldii has large glossy green leaves, which resemble those of the Fig in shape, but which are more divided than they are. This is one of the most valuable plants in existence, as it will stand rough treatment to any extent, and may be used in positions where few other plants would live. Those who have halls or corridors or any cold draughty positions of a similar character to furnish, will find Aralia Sieboldii the very best plant for the purpose. It may readily be raised from seed, and will form good plants when a year old, or they may be bought at that age at a very cheap rate from any of the nurseries. The variegated variety of this—a very handsome plant and fit for any position—is at present scarce and dear on account of its not increasing from seed. Although it flowers as freely as the green variety and sets plenty of seeds, they invariably come up albinos and die off before they attain any size. They have, therefore, to be propagated from cuttings, which is a comparatively slow process. Aralia leptophylla also deserves a place either in the greenhouse or sub-tropical garden. To grow the leaves of papyrifera to any size they require deep rich soil and plenty of water while growing. J. SHEPPARD.

LAYING OUT FLOWER BEDS.

VARIETY in form of flower beds is next in importance to a variety of plants. But, how to invent or lay out a dozen or a hundred, and have no two just alike, seems to puzzle most persons, judging from what we see in villa plats and grounds of more pretension. The square, circular, heart-shaped, diamond and star, are all well enough under certain circumstances, but their frequency in small gardens leads one to think the inventive powers of amateurs, in this direction at least, are rather limited, or are not put to the test for the want of a proper incentive to produce a diversity of forms. Our books on gardening are also full of labyrinthian designs for flower beds, which would require a skilled geometrician to carry out to anything like perfection. For my own part, I never could see anything to admire in one of these carefully-designed flower beds, laid out to a geometrical nicety, like the patch-work bed-quilts of our grandmothers. The free-and-easy natural splashes of a bed here and there among the Grass, or an entire border under cultivation, always look best to my eye, whether right or wrong. I had to form some beds on a small lawn, and the next question to be decided was the shape of the beds, and how they should be laid out. Of course, I could resort to the rule and square, and by providing a few hundred small stakes, the design might be made sufficiently plain for the guidance of ordinary workmen; but I dispensed with all this kind of apparatus and merely took a large rope and coiled it around upon the Grass in the form that I wished the bed to be when finished. With a sharp spade the sod was cut by the side of the rope, and the design was complete. Then I proceeded to the next, and so on until all were laid out, after which my men could go on and dig up the sod over the entire bed without any danger of making a mistake. A rope, of 1 inch or 1½ inch in diameter, laid upon a close cut sod or bare soil, will give one a better idea of how a bed is going to look when finished, than the best drawn design upon paper, or any number of stakes driven in the ground. Then one can twist the rope this way and that, coil and uncoil, until the design just suits the eye, and fits the spot where the bed is to be made. A pretty design on paper may not always fit in among trees and shrubs, and look as well as a person might "think it would." By discarding the square and rule, and using the rope, a person can give free scope to his imagination in designing suitable forms of beds; and the more they depart from the usual geometrical styles the better,—"Moore's Rural." [The above is useful advice to all who desire to lay out beds in the simpler manner we have so often advocated; and the simpler in outline beds are the better. The most beautiful scenes in our gardens are those in which no formal outline of beds are visible.]

Primula cortusoides amœna.—All who have a fondness for beautiful spring flowers, and have not this Primula and its parti-coloured congeners, should at once secure plants, as they are now at rest, and can be easily sent by post in a very small space, if shaken out free from soil. Those who have plants will find this to be the most suitable time to propagate them or to re-pot up, either into small pots singly or in large pots in quantity, as desired. When the old plants are shaken out, it will be found that a number of crowns are developed, each one having a portion of root attached. If each one be potted up singly into small pots they will make strong plants in the spring; but, in order to produce a good head of bloom, it is best to put several crowns into a 24-sized pot in good fine soil, enough of which should be placed over the crowns to almost cover them. Early in the spring these will push growth, and soon a perfect head of remarkably handsome foliage is produced. The flowers are well thrown up, and, whatever their hue of colour, make a very pleasing pot-plant—indeed, I believe this family of Primulas to be one of the most beautiful of the whole genus. Primula cortusoides amœna, because of the rich hue of colour and the stiff erect flowers, produces a most effective mass of colour in the spring garden. For bedding, plants should be turned out of pots early in spring after good growth has been made, as they cannot then be injured by frost. In addition to amœna, lilacina is a very fine lavender-coloured form; grandiflora alba has large pure white flowers, and grandiflora rosea has very large flowers that are white above and red below.—A. D.

Blue Hydrangeas.—"W. W." (p. 364) states that he never could succeed in changing a pink Hydrangea to a blue one. A plant upon which I once experimented produced, for the first few years of its existence, pink flowers; but, after being dosed with alum-water, as mentioned at page 346, it produced blue blossoms, and every season when alum was not given it reverted to its original pink colour. Nevertheless, cuttings taken from it, even when in the blue state, always bore pink flowers, unless watered with a solution of alum, when they were certain to produce blue ones. I may add that the word "eight" (see p. 346) should have been "eighty." I have always found overdoses of alum had a tendency to weaken the growth. —S. ROGERS, *Whittlesea, Peterborough.*

—— I AM certain that the plants of which I spoke (see p. 328) were not two different varieties, inasmuch as two pieces of the same plant re-planted—one on the old "Furnace Tip," and the other in a belt surrounding the lawn—produced different results. That in soil impregnated with iron bore blue blossoms, while the other half, not in the same kind of soil, yielded pink flowers.—E. W.

Bougainvillea glabra Flowering out of Doors.—I send you a sample of Bougainvillea glabra which has been flowering in the open air for the last two months. It is planted inside a cool house, where it has been for the last five years, covering a great portion of the roof; and the roots having free access to the open-air border proves its partial hardiness. In February last I had the one-half of the plant pruned in the same way as a Vine, and taken outside, where it was trained upright against the glass end of the house. It began to break into growth the first week in April, and has made better growth and foliage than the part of the same plant under glass. It began to flower in July, and probably will do so until nipped with frost. The flowers and foliage have withstood a continuous south-east wind and rain for the last three days without the slightest effect or damage, as you may see by the sample sent. I would highly recommend every one, who has plants to spare, to try one or two young ones outside, and so test its hardiness.—JOHN FRASER, in "Gardeners' Chronicle."

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Ficus repens.—This is quite hardy on the walls of glasshouses at Tweedside, near Kelso. Running over bare brick walls like Ivy, it has a pretty appearance, especially when planted alternately with the small variegated Ivy.—CHEVALIER.

Pansies and Primroses Mixed.—Imperial Blue Perfection Pansy and the common wild Primrose planted either alternately in a line, or mixed in a bed, make a beautiful ribbon or bed for the spring flower garden. The two colours harmonise charmingly together.—E. B.

The Blue African Lily near Water.—When at Fota this season we ("Irish Farmers' Gazette") noticed several plants of the blue Agapanthus planted near the water edge of the Bamboo islet, which is such an interesting feature in the grounds. The effect was very pleasing, especially the reflection of the flower-heads in the water. By the way, we should like to see Disa grandiflora fairly tried in the same situation.

Sedum spectabile *v.* Fabarium.—The Sedum alluded to by "Berks" (see p. 389) is really S. spectabile of Boreau, of Angers, an amiable man and good botanist, whose death was recorded in THE GARDEN of last week. I dislike any question about names, but the fact that there is a true S. Fabarium—by no means a pretty garden plant—makes it imperative that we use the proper name in this case.—V.

Begonia Martiana.—I am glad that Mr. Harpur Crewe has directed attention (see p. 389) to this Begonia as a border plant. The late Mr. Rucker gave me a plant of it some years ago, saying that it was hardy in his garden. It flowers beautifully with us, side by side with B. Sedeni. It produces many bulblets, while B. Sedeni seeds freely.—GEORGE F. WILSON, *Heatherbank Weybridge.*

THE INDOOR GARDEN.

THE BEST STOCK FOR EPIPHYLLUMS.

The other day I came across the following remarks on Epiphyllums, by the late Mr. Robert Fish, in which he alludes to the Pereskia stock:—"The Pereskia aculeata was, and is, used for stocks; but I find that plants on it can only be kept in good order for a few years, owing to the great difference existing between the succulent graft and the comparatively hard and woody stem of the stock of this strong-growing kind; the Cereus speciosissimus seems to answer admirably for a stock for the low and weak-growing kinds, such as truncatum, violaceum, and the beautiful small-branched Russellianum; while many of the whip-like creeping kinds, such as C. Mallisonii, and C. flagelliformis (drooping Cereus), are improved from being grafted upon it, at the height of several feet, and their shoots allowed to hang in a pendulous manner." "F. T. P." observes (p. 392) that Cereus and Opuntia, "stop growing during winter, which is their natural season of rest." This is partly true in the case of ungrafted Cereuses and Opuntias, but, when grafted, the circulation of the sap is wholly governed by the leaf action or growth of the Epiphyllum grafted on them. Thus, a Cereus ungrafted, and one on which Epiphyllums are grafted, are incomparable, as far as watering is concerned, inasmuch as the grafted plant requires water in abundance, in order to enable it to supply sap for the scion in proportion to its luxuriance; and the ungrafted plant requires but little water, owing to its being naturally in a state of comparative rest. Again, "F. T. P." says, "The fact of Epiphyllum emitting aërial roots when grafted on the Pereskia proves nothing," an assertion with which I cannot agree; the much larger proportion of aërial roots borne by Epiphyllums, when grafted on Pereskia than when worked on either Cereus speciosissimus or Opuntia Tuna, leads me to think otherwise. I consider that the abundant emission of aërial roots, under some circumstances, and scarcely any at all under others (apart from atmospheric conditions), proves as much in the case of the Epiphyllum as in that of the Grape Vine. Whatever may be said respecting the parasitical or epiphytal character of Epiphyllum, in its natural habitat it is a fact that it roots and grows well on its own roots in ordinary soil; therefore, in cultivation, it is neither one nor the other. As to the hardiness of the two stocks, Cereus and Pereskia, there is no comparison. The Cereus is a common window plant, and two or three degrees of frost do it no harm if it is kept from sunshine until it has become thawed. As to convenience, there is little difference, for, by planting out either Cereus or Pereskia, growths from 4 to 6 feet in length, and even longer, are made in a single season. Nurserymen, however, prefer the Pereskia as a stock. I do not deny, of course, that large plants cannot be grown on the Pereskia, but I have observed that plants equal in point of size can be grown on Cereus speciosissimus in less time, and the union between stock and scion is more complete, owing to the greater sympathy, or rather consanguinity, which naturally exists between them. I often wonder how it is that while we grow plants in pots of Epiphyllums on both Cereus and Pereskia stocks we do not oftener plant them out in our greenhouses, conservatories, and plant stoves to cover back walls and pillars, by which additional interest would be given them. By grafting Epiphyllums on creeping Cereuses and various kinds of silvery-spined Mammillarias, much plant beauty would be the result. The last-named would be equally attractive in summer and winter. F. W. B.

Allow me to correct a typographical error in what I said at p. 392 about Epiphyllums, which, by the transposition of a word, has completely altered the sense which I intended to convey, which was that if these plants were to be considered as epiphytes they should be grown in a stove. With your permission, I shall say just a few words more while on the subject of these plants. The grafts of Epiphyllum on Cacti are really no grafts at all; no matter what kind you take for a stock there is no real union between the two plants; the two wounds granulate and adhere, but that is all. In theory it is quite evident there ought not to be any real graft, as, whether the plant be a true parasite or merely an epiphyte, it must live as a stranger on the stock. Fact has demonstrated to me that theory is right. I have dissected the stocks both of Cereus and of Pereskia which had been grafted a long time, and have always been able to trace distinctly one or more roots of the Epiphyllum running down the interior of the stock, sometimes for 7 or 8 inches, but non-adhering to, and so distinct from, the tissues of the stock, that they could easily be picked out with the fingers. This would lead one to believe that Epiphyllum is a real parasite, but its aërial roots and the increased luxuriance of its growth when treated as an epiphyte in a damp stove, seem to denote that it belongs to the latter class. Botanical travellers in Brazil could easily ascertain whether the trees upon which these plants are found are dead and rotten, or living and sappy—whether they live on them like Mistletoes or like Orchids. Until they have solved the question we must continue to consider them as their behaviour under cultivation denotes, *i.e.*, as partaking of both natures, and living at the expense of the stock or on the dampness of the air, according to the way in which we cultivate them. To those who, like Mr. Croucher, find Cerei to answer well as a stock, I would recommend such kinds as do not throw out branches at the bottom, but have a single, rigid, and cylindrical stem, such as C. azureus, cœrulescens, peruvianus, and a host of others of similar appearance, if thick stems are wanted; while nycticalus, extensus, and all the elongated, would answer best if more slender, but still rigid and comely ones are required. F. T. P.

Agave Victoriæ Reginæ.—Referring to the quotation from the "Revue Horticole," respecting this name, you know the botanical rule is that a name is of no value until it is published; therefore the name Victoriæ Reginæ stands good, and we had a perfect right to use it. I went to M. Louis de Smet's establishment at Ghent, and saw the plant; and, knowing it to be new, bought it. It was an undescribed species, and was shown at the Cologne exhibition as a new plant, and without name; and, as such, secured a gold medal. How, then, could it be an old plant? M. Louis de Smet stated it was introduced by M. Considerant; but that was no reason why A. Consideranti should be a proper name for it, though he deserves credit for having introduced such a valuable plant.—J. Croucher, *Sudbury House, Hammersmith.*

Old Plants of Primula sinensis.—Although it is usual to rely upon seedling plants of this Primula for an annual display of flower, yet it is well to save a few of the best old plants from the previous year, as these, if carefully preserved, bloom earlier and produce much finer heads of flower than young plants. Care must be taken to select only such plants as are quite healthy, and as soon as the spring bloom is fairly over, these should be shifted into fresh pots, the old soil being rubbed down sufficiently to enable the plants to be re-potted into others of the same size as before. The plants should be placed in a cool frame facing the north for the summer, and if they have done well they may receive another shift into pots a size larger early in September. They should then be placed in an airy house and kept near the glass, water being given sparingly. If early in November they can have the benefit of a gentle heat these plants will produce fine heads of flower by Christmas.—D.

Encephalartus Altensteinii.—One of the most stately of Cycads is Encephalartus Altensteinii. The finest specimen of this noble Cycad, perhaps, in the three kingdoms is that in the College Gardens, Dublin, and which has just now flowered for the first time. The plant at the College Gardens is of large proportions and very massive in appearance. The short stout stem is 2 feet in height and nearly as broad as it is high; in fact, one could barely girth it with the arms clasped. The coronal of massive glaucous-coloured fronds has a spread of some 15 feet. The inflorescence of the plant at the College Gardens consists of two huge Pine-apple-like cones; each is conical in form, and some 10 or 11 inches high, and 6 or more inches through. Before the separation of the massive carpels of which the cone is formed, the latter presents a rough, tawny, Pine-apple appearance; but, as soon as the carpels separate, the appearance is changed, the dull tawny colour is relieved by the bright orange of the inner half of the carpels and the brilliant crimson of the ovules, each as large as a Bean. This plant, when very young, was obtained from the collection of Mr. Robinson, once a well-known nurseryman in Kilkenny.—V.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Disandra (Sibthorpia) prostrata.—This is a useful trailing plant from Madeira not unlike ground Ivy in appearance, but furnished with small yellow flowers. Its easy propagation, rapidity of growth, and ornamental appearance make it valuable for basket-work and for planting in rocky chasms in indoor Ferneries, where it has room to trail and hang about in a natural manner.—E. Hobday, *Ramsey Abbey.*

Bignonia capreolata.—This handsome greenhouse creeper flowers about the beginning of the year. Like all creepers, it should be allowed to ramble and fall loosely from the rafters, and should be allowed plenty of room. Its chocolate-coloured flowers, intermixed with its pale green leaves on long cordons, are very attractive, and render it worthy of far more attention than it receives.—Chevalier.

Late-flowering Pillar and Roof Fuchsias.—Venus de Medici and Rose of Castile make excellent climbing plants for flowering in a greenhouse in November and December. At the present time I have a plant of the Rose of Castile, about 13 feet in height, trained on a pillar. All the flowering shoots of it were cut back in August, a quantity of cut flowers being required then, but the plant is now again one mass of flowers, and seems likely to continue so until after Christmas.—William Tillery, *Welbeck.*

THE KITCHEN GARDEN.

YOUNG CABBAGES ALL THE YEAR ROUND.

Of all the vegetables which we possess none is, on the whole, of more importance than the Brassica family. In this article, however, I shall not include Cauliflowers and Broccolis, but shall confine my remarks to the common white Cabbage (Brassica oleracea capitata), to the Savoy and Brussels Sprouts, which is a sub variety of Savoy, and to Borecole. Asparagus, Peas, and French Beans may be considered to be greater delicacies than the more homely Cabbage; but these, under ordinary culture, can only be brought to table during four or five months of the year, while some of the Cabbage family may be had fit for use every day in the year. Of the common Cabbage, which, as every one knows, has firm, compact, conical heads, that become blanched by their own compression, the dwarfer kinds are those generally preferred for cultivation in private gardens. Spring Cabbages are ready to cut, in favourable situations, by the end of April, and, even in backward places, under ordinary culture by the middle of May; and these from seed sown during the last week in July or the first week in August. For our main crop I sow Pearson's Conqueror; it is an improved form of the true Battersea, and brought to a state of perfection by many years of careful cultivation and selection. It is a medium-sized Cabbage, and makes fine solid hearts with very few outside leaves. For a few to come in early, I sow Wheeler's Cocoa Nut; but if the Conqueror is sown at the same time it will come in quite as early. The little Cocoa Nut is, however, a first-rate table Cabbage. The best time for sowing the seed of it is from the 20th of July to the 6th of August, according to the situation and climate. Many, for the sake of having an early crop, sow by the middle of July; but a large percentage of the plants run to seed, so that in the end nothing is gained. I sow about the 1st of August, and scarcely a plant runs to seed. Ground for Cabbage should be deeply dug, and made rich by liberal applications of manure. Some gardening books tell us to sow the first week in August to come into use in spring; again in March to be in use in July and August, and a final sowing in June to carry us on through the autumn. This is a system which I have long since discovered to be unnecessary. When proper care is bestowed in cutting the Cabbage, one sowing is sufficient to carry on the supply through the summer and late into the autumn. As there is a right and wrong way of doing most things, there is a right and wrong way in cutting Cabbage, simple as the operation may appear. Having many people to supply with only a limited kitchen garden, our Cabbages are used as fast as they become ready for use. Even if we did not require them for table, it is best to cut them and give them away while they are young and tender than to allow them to grow hard and burst and then give them to the pigs. By cutting a few heads every day before all the Cabbages are cut, the first cut have begun to break and become furnished with a cluster of fine young sprouts, which soon grow into little hearts, and are ready for use before the first batch is finished. As regards cutting Cabbages, they must not be cut in the first place close to the ground, but just below the heart, leaving as many of the lower leaves as possible, and therefore a greater number of eyes from which young sprouts will rise. When the first sprouts are cut, they will even break and heart again, and these sprouts are quite equal to heads produced from second and third sowings. Much of the succulence of sprouts, and also of the heads in the first instance, depends on the preparation of the land beforehand, and the subsequent manure waterings during the growing season. The size at which to cut the Cabbage will be determined by the requirements of the family, but, as a rule, young Cabbages are preferred to old, full-sized ones. In many localities young Cabbage plants are infested with a grub, which boring the stem underground, causes them to "club," which, in most cases, is fatal to the plant. This evil may, to a certain extent, be prevented by digging wood-ashes into the ground in which the seed is sown. Lime and soot are also useful, but I have the greatest confidence in gas-lime from the gas-works, which, however, must be used with caution. Wood-ashes are quite safe, and are an excellent manure for all the Cabbage tribe.

The Savoy.

This, which forms a connecting link between the Cabbage sprouts and the Brussels Sprouts, may be obtained either with firm heads like Cabbages, or in the form termed Savoy Coleworts, which mean half-grown heads. These are more esteemed by most cooks than those with large heads, as they make a neater dish. The working man, with a large family, will, however, prefer the larger size, as they are to him the most profitable. Of Savoys there are several varieties. I grow the Drumhead, which attains a large size, and the Dwarf Green Curled and early Ulm are excellent dwarf kinds, suitable for small gardens. Savoys may be obtained in perfection from September to the end of March; they are, however, considered to be at their best during October and November, and are a little tenderer after frosty weather than before it. To produce Savoys for early winter use the seeds should be sown by the middle of March; and, if a succession is required after Christmas, another sowing should be made when the first is peeping out of the ground. The Savoy, like all the other members of the Brassica family, enjoys good food, and, if planted on rich soil, will well repay any extra care that may be bestowed on its cultivation. A good soil, well manured, will produce Savoys in perfection; and, if the situation happens to be a dry one, liberal supplies of manure-water should be given during the growing season. The Drumhead should be planted in rows, 2 feet apart and 18 inches asunder in the rows, and the Dwarf Green and the Early Ulm should stand 20 inches row from row. Savoy Coleworts may be obtained by selecting the very refuse of the seed beds and planting them out, the second week in August, in drills 18 inches apart and 9 inches asunder. I am generally obliged to plant my Savoys after early Peas or between early Potatoes, and the latter are off the ground soon enough to give the Savoys time to mature their growth.

Brussels Sprouts.

These, as is well known, constitute one of the most useful of winter vegetables. They may be obtained in perfection from October to the end of March; and, though they may be had in April, yet, on account of the variableness of the weather at that period, they soon lose that butter-like appearance for which they are so much esteemed. When at their best, they are delicate in texture, and, under high culture, will produce as much eatable material, on a given space of ground, as any winter Green we possess, perhaps, indeed, more than any other, as they may be planted somewhat closely, and no garden, either large or small, should be without them. One sowing will supply a constant cutting during the winter, and this must be made as early in March as possible. They delight in rich soil, and two or three thorough drenchings with manure-water, after they have become established, make a great difference in them, both as to bulk and quality. If the land is in good heart, the rows should be 2½ feet apart, and the plants 15 inches asunder in the rows.

Borecole or Curled Greens.

These connect the Brussels Sprouts with the Cabbage. The tops may be used at any time during the winter, but the Sprouts come into use during March and April. We have no winter Green more generally cultivated among cottagers in country places than this. It will succeed in any ordinary garden soil, with a little manure; and one sowing will be found ample for most gardens, be the demand what it may. The seed should be sown early in March. The plants may be finally planted in rows 2 feet apart, and about 16 inches asunder in the rows. These, as well as all the others, are much improved by being pricked out—that is, transplanted when they are small. Thus treated, they produce finer heads with shorter stems than they otherwise would do, and are less liable to be injured by wind, besides being more productive and more economical as regards space.

Q. R.

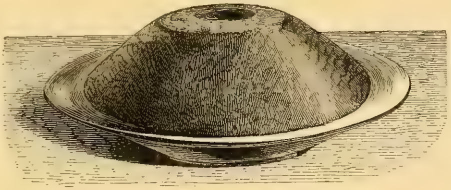
Black Slugs.—The best and cheapest way of destroying black slugs is to use diluted gas liquor, in the proportion of about three pails of water to one of liquor. This should be applied in damp weather.—E. Bennett, *Rabley*.

THE GARDEN IN THE HOUSE.

FLAT FLOWER TAZZAS.

For the arrangement of some varieties of flowers, flat tazzas, or dishes, are better adapted than vases of a more ornamental shape. Flat arrangements look well either in a hall, or on a drawing-room table; and, indeed, in almost any position in which they may be placed. When I speak of flat arrangements, I do not mean that the flowers should be arranged flatly; quite the contrary. Let us suppose that we have an oval or circular dish to deal with. In the centre, built up in the form of a mound should be some wood Moss, or fresh Sphagnum. If the latter can be obtained, it is the prettiest; if neither are to be had, then sand or clay must be resorted to. A tough mixture of a description of pipe-clay is sold in lumps at the florist's shops for this purpose. Where the latter is employed, the surface should be hid from view as much as possible, as clay seen amongst the flowers would look unsightly. The best kind of covering is Box clippings stuck all over the surface; but if Moss can be employed all this trouble is obviated, as, if seen, it has rather a pretty effect than otherwise. Round the outer edge or margin of the dish should be placed a wreath, or fringe of leaves or Fern fronds, according to taste. Large flowers are best for this style of arrangement, light varieties being left for trumpet-shaped and similar vases. Some of the following flowers look well, arranged in flat dishes or tazzas, viz., Water Lilies, or, indeed, Lilies of any kind, Roses, Allamandas, Stephanotis, Dipladenias, Eucharis, and Camellias. After the large flowers have been placed in position, they should be intermixed with light and drooping kinds, such as Lily of the Valley, Rhodanthe, Deutzias, &c.; and, in order to shade the whole, there should be fronds of Maiden-hair Fern and light Grasses. The beauty of this description of arrangement can be further enhanced by a small Palm or Fern being inserted, pot and all, into the centre of the mound of Moss or clay. This could only be employed where the dish was of a large size; and though large-sized dishes with flowers in them look best, still neat little stands can be made up in saucers with flowers, such as Violets, &c., with excellent effect, a specimen glass being inserted in this instance in place of the plant. A. Hassard.

Flat vase with flowers.


Flat vase without flowers.

OLD-FASHIONED NOSEGAYS.

These used to be made up of sweet-scented flowers and fragrant leafy spray, but, unfortunately, they are now so much things of the past that the sight of one would be quite a relief, compared with the densely packed, mushroom-shaped bouquets of our own time. The old posy chiefly consisted of a handful of bright flowers and fresh green leaves, while one of its principal charms was the total absence of all the so-called modern art of the bouquetiste in its arrangement. No delicate blossoms from conservatory and greenhouse were there, but in their places we had Clove Pinks, Carnations, white Lilies, Sweet Williams, scarlet Fuchsias, sprays of Honeysuckle and branches of fragrant Rosemary, Southernwood, and Sweet Briar, intermixed with Cabbage and Moss Rose buds. These were arranged as they were cut, a Rose bud here, and a spray of Mignonette or Jasmine there, each flower having a fair accompaniment of its own foliage, so that colour was balanced and toned down by fresh greenery. In an arrangement such as this, individuality of form was well brought out—a feature wholly wanting in the modern bouquet, where flowers are crammed into lines, masses, or circles, and where the whole is garnished with the everlasting sameness of Maiden-hair Fern and lace paper. B.

WILD DUCKS AND VALLISNERIA SPIRALIS.

Many who grow this aquatic plant in the stove or greenhouse will be interested to know of its great importance as food for some of the most valued of the numerous water birds that inhabit many of the great American rivers. The "American Agriculturist" states that the renowned canvas-back (Fuligula vallisneria) is found all over North America, but is only especially prized when it feeds in particular localities, and is a remarkable example of the influence of certain food in imparting quality and flavour; while the canvas-back of the Chesapeake and a few other localities is regarded as the finest of all ducks, and is held in high esteem by epicures at home and abroad, it is, when shot elsewhere, no better than some of the common sea ducks; the superiority of birds from these localities is due to their food, which is a plant popularly known as wild Celery, but which is not at all like or related to the garden Celery. It is an aquatic which grows entirely submerged; its narrow ribbon-like leaves, 1 to 2 feet long, have caused it to be called Tape Grass; its botanical name is Vallisneria spiralis, and the fact that it is a favourite food of the canvas-back, is recognised in the specific name of the bird. Wherever this plant abounds, there these ducks acquire the peculiar flavour for which they are noted; the plant is abundant at various places on the Hudson above the influence of salt water; but the birds have well nigh abandoned these feeding grounds. Chesapeake Bay and its tributaries, and to some extent Delaware Bay, are the great localities for these ducks; they arrive at the feeding grounds in November, or earlier, and are allowed to remain undisturbed long enough for the influence of the food to be manifested. They are powerful divers, and obtain their food from the bottom, the roots and buds at the base of the plant, being the portions they eat; they may often be seen covering acres of their feeding grounds, and from their great abundance one would suppose that they could be captured very readily, while in reality it requires much skill and stratagem to get a shot at them. There are several methods of hunting from boat and from the shore. Boats and floats disguised in various ways are used, and batteries and screens are built upon the shore behind which the hunters conceal themselves; favourable localities for hunting are rented at high rates. In some cases those who make hunting a business, employ as many as twenty men, and send to market fifteen to twenty barrels of ducks, including a large share of canvas-backs, weekly; formerly enormous swivel-guns were used by which hundreds of birds were killed at a single discharge, but this destructive slaughter is now prevented by law. Pairs of canvas-backs sometimes weigh as much as 12 lbs., but this is unusually large; considerable numbers are shipped by steamer to England, where they find a ready sale at high prices. Several other ducks feed upon the Vallisneria; the red-head, which belongs to the same genus, has a broader and shorter bill, and a pure chestnut-coloured head; when from the same feeding grounds, it is regarded as nearly equal to the canvas-back, and sells at a high price. The bald-pate or American widgeon, which has the top of his head white, feeds with the canvas-back, but not being so good a diver, it manages to steal the Vallisneria from that bird, as it brings it up from the bottom, and by the residents in the localities where both birds abound, its flesh is preferred to that of the canvas-back.

Graceful Plants for Table Decoration.—Those who require to grow Palms for table decoration should possess themselves of Geonoma gracilis. It is, to our mind, much more graceful than even Cocos Weddelliana. One of the most graceful objects for table decorations is Croton angustifolium, when grown with a single stem, and clothed to the surface of the pot. In 5-inch pots fine plants can thus be grown to a height of 2 feet or more.—"The Gardener."

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Lilies.—These plants, many of which have for years been comparatively neglected, are now much sought after, the usual mistake, when there exists a mania for any particular family of plants, being committed of attempting to grow all kinds, whether good or indifferent. Numbers of amateurs have been sorely disappointed by purchasing quantities of Lilies by the description given of them, and that really are not worth growing by any but those who intend forming complete collections. We should advise amateurs to aim rather at selections of the handsomest and most distinct varieties, and, in the case of those that are not certain of succeeding planted out in any locality, to first grow them in pots. When well managed in this way there is a better chance of them doing satisfactorily than by planting out, except where the soil and climate suit them. Numbers who have attempted the cultivation of Lilies have only succeeded indifferently, although they are plants of very easy culture provided the peculiarities of their nature are studied. For example, they should never be potted or have their roots disturbed when they are in active growth; they should never be allowed to suffer for want of water from the time their tops have appeared above ground and have attained considerable size, and all through the growing season, when they have got a good amount of leaf surface, they require plenty of water. Another point of equal importance in pot culture is that from the time the tops have died down in the autumn the soil should never be allowed to get too wet or too dry. The present, when the tops of almost all are dead, is the best time for re-potting, in which operation disturb the roots as little as possible. Good moderately sandy loam, with one sixth thoroughly rotten dung and leaf mould in equal proportions, thoroughly mixed with the soil, will grow them well. In potting cover the bulbs with about 4 inches of soil, and stand the plants through the winter in a house, pit, or frame, from which frost can be excluded.

Lawns and Shrubberies.—The Grass should be, where it is requisite, mown moderately close. In many situations this will be the last time it will need cutting this season. It is not well to mow lawns very close, except in the case of those that have not been laid down many seasons, and where the Grass has yet a tendency to grow quickly and strong. With old lawns, where the Grass is inclined to be weak, and die off in the summer, cutting late in the season, and mowing it very close, so as to expose the roots to frost, aggravate the evil. If it is now allowed to grow a little, by only cutting it so as to allow of the usual sweeping up of fallen leaves and worm casts, it acquires considerable strength between this time and the close of the year, the beneficial effect of which will be apparent the ensuing summer. Leaves should be swept up as they fall, choosing, so far as possible, a time when the ground is dry, especially on gravel walks; for if these are wet, a good deal of the finest gravel will be swept away. The walks should now be gone over, and all weeds picked out by hand. In removing weeds from shrubberies, care should always be taken that no considerable amount of soil is raked off with them. Except on the score of appearance, it is much better to leave them on the ground until the whole have fallen, and then to dig in all that are not required for the various purposes that leaves are used for, such as the formation of hot-beds and for laying up to rot for leaf mould.

Preparation for Fruit Trees.—A short time ago I urged the necessity for preparing land for fruit trees of all kinds, including bush fruits, and for completing the planting as soon as the season would permit it. Whatever preparation of the ground yet remains to be done should at once be carried out and the planting pushed on. All the advantages are on the side of completing this work without delay; later on, short days, and the condition of the soil, prevent the possibility of its being done so well or expeditiously. There is another matter connected with early planting that amateurs who have trees to purchase will do well to bear in mind. Those who procure trees early have the pick, which are very often worth double that of the plants sent out subsequently. Trees of any considerable size that are removed should, as soon as planted, be secured from injury from wind by stakes, for, if allowed to be shaken about so as to disturb their roots, it will do them serious injury; trees that require support after planting should have three stout stakes, each about 5 feet in length. These ought to be driven into the ground about 2 feet from the trees in a slanting position, so that the tops of the stakes will meet together a yard or so up the stems, at which point they should be secured with strong tarred twine, lapping the stems of the trees with a straw rope, so as to keep them from injury by the stakes.

Celery.—The principal crops of Celery for winter use should now have the remainder of the necessary earth placed to them; this, as has been before pointed out, ought not to be completed too soon with that portion wanted for use during January and February; for, when earthed-up high, even when grown in dry light soil, Celery has a tendency to decay after the blanching process is complete; but it is not safe to risk it unearthed after this time; for, should 12° or 14° of frost occur, as frequently happens during the present month, the tops will be injured down to the point to which the ridge of soil has been brought up. In carrying out the work, more care should be exercised with Celery that is required for use at the time above-mentioned. Early in the season it is a very common occurrence to see the soil pushed in with the spade, the stalks being bruised and a portion thus getting down into the hearts. The natural consequence of this is to cause it to rot, especially if much rain should follow. Instead of this rough method of performing the operation, if the soil is of a heavy nature, it should be loosened with the fork or spade, and well broken up, and if there is an appearance of dry weather for a few days, it should be allowed to lie, in order that it may be pulverised, and the work may then be completed by gathering the leaves of each plant close together with one hand, whilst, with the other, the soil is drawn close to it all round. The rows can then be completed, laying enough on with the spade to bring it up to the requisite height, carrying each ridge up to a narrow point at the top, so as to throw the water off. The importance of this cannot be overrated, as all the water that runs down into the hearts after this time not only has a tendency to cause rot, but, the drier the soil is, the less it will be acted upon by frost. We often hear complaints of Celery decaying prematurely through the winter, which is traceable to two causes—either the sorts grown are inferior, spongy, or hollow in the stalks, or the earthing-up and protection during frost has not been well managed. If the kinds recommended at the time of sowing are grown, and the planting and after-treatment has been such as has from time to time been pointed out, no difficulty will be experienced in having a supply of this favourite vegetable up to the end of March. The last crop of all, intended to come in for use after that which we have already spoken of should only be about half earthed-up—that is, the ridge ought not to be brought higher than the centre leaves, leaving those exposed to the light until later on, to protect which, and the general crop, from severe frost, sufficient material should be in readiness, in the shape of stable litter, Asparagus, or dried Pea-haulm, dried leaves, or, best of all, Fern. Amateurs should, where possible, secure a good supply of this useful material, which, for all purposes of protection from frost, is superior to all others. It must, however, be kept under cover, for, if it is allowed to lie in masses and get wet, it will rot. It is now dead and in right order for gathering. A dry day may be chosen for cutting it, and it may be stowed until required under a temporary covering of any kind, or placed a couple of yards thick over Potatoes, Carrots, or Beet, in the root-shed, and here kept until wanted. Not only is this Fern (the common Bracken) good for the purposes mentioned, but it is also invaluable for laying over beds of Hyacinths, or for placing round crowns of tender herbaceous plants, the collars of Tea Roses on their own roots, or for putting around the heads of standard Teas. It may be added that there is nothing objectionable or untidy in its appearance when thus used.

Potatoes.—It will be well to again turn over the crop of Potatoes and remove any diseased ones that may have escaped detection previously, as, if allowed to remain, they affect all they come in contact with. Even if there is a total absence of disease, they are very much improved by turning over in this way if at all damp. To have Potatoes in the best condition, they should be quite dry for a considerable time before using, for this reason—the quality of Potatoes kept in clamps is never to be compared with such as are stored in a dry shed. When the clamping system has to be resorted to for wintering Potatoes, they should always be taken out and placed for a month or six weeks before using in a place where they will get dry.

Flower Garden and Pleasure Grounds.

The weather having been generally mild since spring flowering plants have been placed in the beds which they are to occupy, they have consequently become somewhat established, and all that will now be required will be to keep the surface of the soil stirred occasionally, and the surrounding turf and gravel walks well swept and rolled, in order that the whole may present as orderly an appearance as the weather and the season will permit. Beds of Fuchsias, more particularly those with white corollas, are very effective in the flower garden, and will endure for many years, though their stems will generally be killed down to the ground by the first severe frost. When this has taken place, the dead tops should be cut off, and the surface of the beds or border should be covered with 2 or 3 inches of sawdust, old tan, or cinder ashes, which will be sufficient protection during most winters. In herbaceous borders, Sternbergia lutea is already in full flower, and the most inclement weather will have little effect upon it. But the various sorts of border Chrysanthemums should, if severe weather sets in, be afforded some temporary protection, as should also such winter-flowering shrubs as the Chimonanthus, Jasminum nudiflorum, Daphne Mezereum, &c., most of which are perfectly hardy, but severe frost and moisture nevertheless prove destructive to their blooms. Therefore, a slight covering of mats, frigi-domo, or some similar material, should be held in readiness to be applied when necessary. A slight protection should likewise be applied, or rather held in readiness to be applied to such plants as are known to be unable to withstand, without injury, the severity of some of our winters, amongst which may be mentioned Desfontainea spinosa, Eugenia Ugni, Escallonia macrantha, Euonymus japonicus, some of the hybrid Rhododendrons, Magnolias, Myrtles, &c. Dahlia roots should now be taken up, and, after being dried, should be stored away out of the reach of frost, and the same should at once be done in the case of the various sorts of Gladioli, and Anemones; Ranunculuses should also be planted now without delay, while the soil is in proper condition for their reception, If the Ranunculus, which is less hardy than the Anemone, cannot conveniently be planted now, on account of the soil being still too wet, which, on heavy lands may yet be the case, it will be advisable to defer planting it at least until the middle or end of February. In preparing ground for the reception of these roots a portion of fresh turfy loam should, if possible, be added to it, together with some well-rotted cow manure. These should be well incorporated with the original soil, which should be stirred up to a depth of not less than 2 feet, and the manurial matter should be kept well down, so as to prevent it coming in immediate contact with the newly-planted roots, or while such roots are in a dormant state, as this would be likely to prove injurious if not fatal to them; more particularly should the soil happen to be of a cold or damp character. To prevent, as far as possible, danger arising from this cause, the drills should be drawn about 3 inches deep, and about half-an-inch of sharp river or silver sand should be placed in the bottom of each, on which the roots should be placed, and pressed gently at a distance of 3 or 4 inches from each other. Another portion of sand should be strewed upon the roots previous to levelling in the soil. The present season has hitherto been favourable for the prosecution of any alteration in dressed grounds, consisting of the removal or transplanting of trees and shrubs, including Roses, &c., all of which should be securely staked where this is found to be necessary, and the surrounding soil should be mulched with littery manure, in order to check evaporation, and prevent frost from penetrating it. It will hardly be possible as yet to keep all parts of the ground in thoroughly good order, as the leaves have not yet all fallen; but, as soon as this is the case, they should be removed with as little delay as possible.—P. Grieve, *Culford, Bury St. Edmunds.*

Forced Vegetables.

This is a suitable time for commencing to force Asparagus, and the methods of producing this delicately flavoured vegetable are numerous. A bed in which the plants are bricked in, and pigeon-holes are left to allow heat from linings of manure to enter, is a very simple method; the admission of air, when the weather is cold and damp, is the most difficult matter in connection with the system, but when a hot-water pipe is placed round inside the brickwork, the management is of a very simple character. The system which I prefer are good pits, such as are used for Strawberries and Melons, properly heated by hot-water pipes with bottom-heat from leaves or hot-water tanks; and when the forcing of Asparagus is over, these structures can be used for any other purpose. The brickwork placed round the beds cannot thus be utilised, and the question is, is there is any gain as regards labour, as the plants soon become exhausted after being forced; a piece lifted and forced yearly, and as much planted, always will keep up the stock, and though Asparagus may be cut in first-rate condition from beds many years old, the annual sowing or planting of a portion makes the matter certain. Frames placed on beds of manure, boxes which can be moved into warm structures, or plant protectors placed on the "store-heap" of leaves, are also some of the ordinary means used to raise Asparagus, but a bottom-heat, kept steady at about 80° or 85° will set the roots into action, and when the growth comes through the soil air must be given, and a temperature, not exceeding 60°, may be maintained. When blanched Asparagus is desirable, a dark close atmosphere is necessary. The greater the heat applied, the weaker and less valuable will be the produce—burning through the fluctuating temperature of manure is not uncommon—and, where there is a rapid rise, holes with a stake may be made all round the bed, but, if that is not enough, the plants had better be lifted out and the bed shaken up. When lifting the Asparagus from the beds let all the roots be kept entire; take every care of the crowns, and after a few inches of soil is placed over the forcing-bed, let the roots be placed thickly over the prepared surface, spreading them out, keeping the crowns clear, then place a few inches of light soil over the whole. Old Mushroom manure, mixed with loam, free from lumps, answers well; water well with tepid manure-water, and look to the bottom-heat trial-stick daily. Forcing Seakale will soon be commenced in most places. Many do not care to see it on the table before Christmas, and by beginning now it can be had, by slow forcing, strong and good at that season. Lifting the strongest roots, trimming them to clear off the loose parts, packing them thickly in soil, which can be kept dark and free from air, and maintaining a temperature from 55° to 60° with a good watering, are all that is necessary to raise good Seakale, which may be forced in Mushroom-houses, cellars, under stages of plant stoves, boxes with lids placed on beds of manure, and pots or boxes placed over the crowns, in short, in any position where the necessary heat can be kept up by fermenting manure and leaves, and under these conditions, heads that are crisp, strong, and well blanched, may be obtained. Rhubarb may be brought forward in early Peach-houses, Vineries, warm cellars, Pine-houses, or anywhere that a forcing temperature can be maintained. The most simple method we know of is to lift the roots entire, packing them closely under the stages of a forcing house, and covering them with old tan, leaf mould, or old Mushroom manure and plenty of moisture applied. Covering the crowns with pots and manure, as is done with Seakale, is a simple old practice, but we like Rhubarb to have light and air at this season; besides, rank manure often injures the flavour. Early Red and Prince Albert are good early kinds; for later supplies, Victoria is one of the best. Blanch Chicory in quantities proportionate to the demand; a quantity of roots brought on slowly will give supplies for months. Potatoes, matured to supply new tubers at Christmas, should now be protected from frost. This applies to those which were planted late in the open ground. Those in pots and frames, which were raised from early-ripened Potatoes in frames, should be kept growing as long as possible, to prevent them from being drawn up by a close atmosphere or from being sodden with wet. If dwarf Peas are growing in frames and pits, they require similar treatment to Potatoes. In pots they do well, when kept near the glass with plenty of air. French Beans should be carefully looked to now, watering being the most important matter at this season. The soil should not be made sodden, as it will soon show itself in weakly growth. Manure-water may be given to those plants which have filled the pots with roots. Earth up the pots with soil warmed and free from rough hard lumps. Mustard and Cress should be kept up by weekly sowings.—M. Temple.

Indoor Fruit Department.

Vines.—A portion of the fermenting material placed on the inside borders of recently-started Vines should be turned over with a fork every day. It should be stirred up from the bottom, so that the heat and moisture may rise freely about the canes early on fine days. It is seldom necessary to open the ventilators; and, unless the weather is very cold, fire heat need not yet be applied. Much mischief often arises through beginning with a high temperature. Ascertain the amount of heat in the hot-bed on the outside border. If the thermometer does not rise to 90°, add a quantity of fresh litter, and be sure that it is covered so as to keep out rain. Where the wood is thoroughly ripe, and the leaves down on late Vines, they may be at once pruned and cleared. Those to be started next month should have immediate attention, in order to have everything ready for starting. Painting the Vine-rods after they are pruned and cleaned is not so much practised now as it was at one time; but where insects have been plentiful, and where soap and water are incapable of eradicating them, the rods should be painted with a solution of soot, sulphur, clay, and soft soap, in equal parts. These ingredients should be mixed with water until they have acquired a paint-like consistency, when a hair brush must be used to work it well in about the rough spurs, care being taken not to cover or touch the eyes, or some of them may fail to start into growth. Where plants are not wintered in such houses, admit abundance of air after these operations are finished.

Pines.—The night temperature for well-rooted suckers may range from 55° to 60°. Very few opportunities now occur for admitting fresh air into any kind of Pineries, but when the weather is mild the top ventilators may be opened a little during the warmest part of the day when the temperature exceeds 70°. This applies more particularly to suckers and successional plants which are growing slowly. Plants in fruit should be kept close until the temperature reaches 80°, and when air is given at this point it should not be with the intention of lowering the temperature, but of preventing it from rising much higher.—J. Muir.

Peaches and Nectarines.—Where fruit is required early in May, a house in which the wood had ripened early may now be closed; but to be successful it must be forced very gradually; for to attempt brisk forcing would defeat the object in view. If the border has been renewed, and both trees and structures cleared, it may be necessary to give a moderate supply of tepid water at the roots; but if it be found that the soil is in a healthy moist condition, it is better to omit watering for some time. Outside borders should be covered with dry litter, leaves, or Fern, and wooden shutters, tarpaulin, or house tiles, should be placed over the whole to throw off wet. Some have strong faith in thick coatings of manure, and other fermenting material, for heat being applied over the roots; but, after trying numerous experiments, I am of opinion nothing is gained by this practice. The active roots which draw up nutriment to support the trees and fruit are either at the front of the border, or far beyond it; and the covering in this case is often the means of doing more harm than good by directing the wet to the feeders, keeping them cold and sodden. To be safe, it is necessary to be certain how far these roots extend; and let them be protected their whole length. When the roots are wholly inside, this difficulty does not exist. Trees always do best when their roots have filled the inside border, and have their full liberty to grow outwards afterwards. Syringe the whole surface of the house, allowing every branch to be well moistened, but the paint used on the trees against insects need not be washed off by applying the water against it with the syringe too forcibly. The floors and inside borders may be frequently moistened with a rosed watering-pot, but a stagnant atmosphere must be avoided. The temperature need not be more than from 40° to 45° for the first few weeks, that is, supposing the weather should be cold; on sunny days give plenty of air, but, at the same time, use the syringe after. It is much better to begin forcing in good time than late and have to drive the trees on quickly. On mild nights it is well to leave on a chink of air. If the fruit-bearing wood is soft and badly ripened forcing should be proportionately delayed. Figs are more easily forced than Peaches and Nectarines; dryness at the roots or cold and wet soil often causes the fruit to drop when about to swell off towards the ripening state. The first week in April is the earliest period in which we ever gathered ripe Figs, and they were from a back wall of an early Vinery with a hip roof. Brown Turkey and White Marseilles are the most early forced. Of many Figs which we have tried Grosse Verte is also a favourite, especially for pot work. A good surfacing, as for Peach borders, is advantageous, and preparation in other respects must not be neglected. For trees grown in pots a fresh surfacing of loam, rotten manure, and bone meal, is suitable, and they must have good drainage. The pots should be plunged in a bed of leaves giving out a mild heat, say 75°, laying a turf or two at the bottom of the holes in which the pots are to be placed. When the roots grow through the pots and into the earth, giving the latter a good soaking of tepid manure-water assists greatly to swell off the crop to a great bulk; 45° at night is a sufficiently high temperature. —M. Temple.

Hardy Fruit.

The excessive rainfall of the past few weeks having hitherto prevented planting operations, and as the best season for performing them is fast advancing, no opportunity should be lost to further such work whenever the weather is favourable, but, on no account, should planting be done when the ground is in a sodden state; for, in addition to the unpleasantness of trampling about on wet ground, it is most injurious to the plants themselves, as it clogs up the absorbing pores of the rootlets, and induces the ground to crack as soon as drier weather sets in. If necessity demands it (as is sometimes the case to get an operation completed offhand) a tree may be planted in wet weather by wheeling a barrow load of dry soil to the place and planting in this; but, as a rule, it is better to wait for fine weather, as the after success of the trees depends much upon the manner in which the operation has been effected, a fact that is not sufficiently realised by either professional or amateur cultivators. Drainage, soil, position, variety, season, and mode of planting, all these must be well studied to attain success. The first two requirements, drainage and soil, are pretty generally understood and acted upon, but the next—position—is thought little of, for if a border is prepared for fruit trees it is generally appropriated either to vegetables or flowers, and the roots of the fruit trees are driven below to seek nourishment in either the drainage or sub-soil. Where, as in our own case, ground is scarce, a modification of the system at present practised can easily be effected by giving the trees a few feet of clear space to themselves, renewing the surface soil frequently, and giving them rich top dressings to entice the roots to the surface. By this means we shall, in some measure, neutralise the bad effects caused by cropping with vegetables or flowers. As at any moment now we may have frost severe enough to injure Fig trees, and especially the embryo fruit that is to ripen next year, if the leaves are off let them be unfastened from the wall, tied in bundles, and wrapped with hay bands, and again tied with string to the walls. This is the quickest and most effectual plan of protection with which I am acquainted.—W. Wildsmith, *Heckfield.*

A CHATEAU GARDEN.

The contrast between French and English country life is strongly marked, and nowhere more so than in the garden. The effect of the love of gardens in England is undoubtedly to make the country the most beautiful on earth. It is admitted to be so by men of all nations, who have travelled in many lands, and the explanation is found in the beautiful trees and shrubs that soften the harsh lines of the buildings everywhere, and make the landscape lovely with their clouds of verdure and varied forms. The best cultivated parts of Belgium and France are wholly devoid of beauty, from the absence of trees. The streets of many fine Continental towns are as arid as a barrack-yard, in consequence of the absence of the little front gardens which abound in and near English towns and cities. Gardening abroad, as it is with us, has received a great impetus within the past score of years; but in France this is mainly seen in the gardens of the middle class. In the homes of the most wealthy and ancient families in France we see no such evidence of love for the art as we have at home; and richly stored or otherwise remarkable gardens are by no means so common as with us. Frequently the chateau garden is a dismal exhibition of the puerilities and absurdities of the old school of Continental landscape gardeners. Lime and other trees, mown into the form of walls; dreary expanses of graveled surface; endless straight avenues, where there ought to be open spaces where the breezes might play; crumbling fountain basins reminding one of mouldering tombs; sometimes an orangery reminding one of the time when the Orange was our only greenhouse plant; and statues stained with Lichen that one wishes were quietly buried with those who carved them. There are exceptions, of course, and many, but even in the best of those there is a great deal more of the zoological element than one cares to have in an English garden. The aviary, too, is often disagreeably conspicuous, and the water fowl, too, plentiful enough to destroy the beauty of the water. The buildings—hoary with time, and frequently interesting as regards fine architecture—are seldom surrounded by noble trees. The planting of a variety of trees is, however, more the rule in France than with us. The absence of fine trees is frequently accounted for by the destruction through wars, though the stupid practice of lopping the trees has much to answer for. A revolution in this respect is as much wanted in many gardens in France as ever it was politically in the rottenest days of the old *régime.* The admirable culture that one notices in the market gardens round Paris and some other cities, is rarely seen in the chateau garden, which never looks so well cultivated as an average English kitchen garden. A few well-trained trees, however, are always to be seen. The knack of training and grafting fruit trees with ease and to perfection, seems now to be as deeply engrained into the French as the making of soup; and yet there is seldom anything like a finished fruit garden, apart from those of amateurs and nurserymen, and evidently from want of means. Money is not spent on the garden liberally as with us. The causes of this no doubt could be readily explained. In looking at the facts we have to congratulate ourselves that circumstances have tended to place ornamental gardening and planting in a decidedly more advanced condition in our country than in any other. We have got further away from the ideas that led to lopping trees into the forms of coffee-pots than any other people. We have much to do and much to abolish yet. But our privilege of leading the van in this way should incite us to greater exertion still in the cause of progress; to make the garden more and more a conservatory of beautiful natural objects; to abolish formal line gyrations, and all other matters tending to offend or distract; to make the garden more artistic, in a very high sense indeed, that our garden galleries may be filled for the reception of the living, changing, pictures we may store in them. And perhaps the world will one day think as highly of us for being the first among those who taught how to embellish the earth as for making big ships or sharp bayonets. The Château de Mouchy, of which we this week publish an illustration, is one of the most picturesque in the neighbourhood of Paris. Situated on an eminence, it commands fine views of the surrounding country, which is well wooded and charmingly broken up into hill and dale.

CHATEAU DE MOUCHY.

THE FRUIT GARDEN.

LORD BUTE'S VINEYARD.

If Mr. Pettigrew has not advanced evidence of a sufficiently conclusive character to convince "R. S. F." of the possible success of the Vineyard at Castle Coch, still less can I find anything in the cause of reasoning adopted by "R. S. F." himself sufficiently strong to warrant his condemning the whole undertaking as a wild and visionary one. "R. S. F." says that he "has had experience of Grape growing on walls in more favourable localities than Glamorganshire, and the results were always unfavourable." Does he mean by this that he never succeeded in fairly ripening a crop of Grapes on a wall in England? If so, what can have been his system of culture, and over what term of years can his experience have extended? In this district, which is rather backward and cold, Sweetwater and Cluster Grapes ripen generally very well; this year, although the early summer was cold, they have ripened in most places very fairly. From well authenticated records we know that the Vine was formerly cultivated to a considerable extent in this country for the purpose of wine making. At Cobham, in Surrey, on the Painshill estate, there is a piece of ground still called, I believe, the Vineyard. In Rochester there is a large piece of ground called the Vine; at Hatfield there was a Vineyard, and in many other places throughout the country the word Vineyard still lingers amongst us, showing that in former times Vineyards were far from being rare. At Burleigh, in the thirteenth century, the Venetian Ambassador to the court of James I. was shown the Vineyards appertaining to the estate. On expressing his fear that the Grapes might not ripen sufficiently well, he was assured by the noble owner that they made very good wine from them, and as late as 1763 there were 60 pipes of home-made Burgundy in the cellars of Arundel Castle. Kent was long famous for its home-made wine, Canterbury being well supplied with Vineyards in the thirteenth century. Dr. Plott, in his "Natural History of Staffordshire," says that Sir Henry Lyttleton made wine so good that it was altogether undistinguishable from the best French wines by the most judicious palates. But this I imagine was only effected during some very favourable summer, though, if the Vines were advantageously situated, it is possible that it might be done in an indifferent year. Indeed, if history can be relied on, wine, good enough to be used even at the tables of the wealthy, was habitually made in many parts of England from Grapes grown in an ordinary way in Vineyards; that the wine thus made was equal to or was intended to rival the best Continental brands no one would wish to assert; but surely, if only some 200 or 300 years ago great quantities of wine were made and relied upon as a useful beverage in this country, we are not too presumptuous in supposing that, by a careful selection of soil and locality, combined with a judicious system of culture, we might succeed in ripening the Grape well enough, in most years, to make wine, which would form a pleasant addition to our list of dinner beverages. Even putting aside the question of wine making, would not a large supply of cheap home-grown Grapes be a great boon to the crowded populations of our large towns? However destitute they might be of saccharine matter, they would at any rate rival in sweetness and be more healthful than the greater portion of cheap Grapes which are annually imported in such quantities into this country. If "R. S. F." has travelled on the Continent he will be aware that a great quantity of wine is made which, in ordinary years, is very deficient of saccharine matter. In many parts this wine is consumed in the district in which it is produced, and in France is called Petit Vin du Pays, as, for instance, round Vernon, in Normandy. It is a pleasant wholesome drink, and, in a country where beer is bad and dear, and the use of tea hardly known, is an inestimable boon to the peasantry. I have drank wine in many parts of Germany which I might firmly believe might be equalled by that of home growth. One question I should like to ask your readers, and that is—How comes it that Vineyards have been abandoned as English institutions? did the Reformation, in sweeping away old monasteries, destroy them? or has our climate become so cold that it is now impossible to attempt, with any probable amount of success, that which our ancestors seem to have performed with fair results? I am not sanguine enough to believe that we can make wine of a superior description, still I cannot agree with "R. S. F." in his sweeping condemnation of the experiment at Castle Coch; on the contrary, I would like to see the spirited undertaking of Lord Bute repeated in other parts of the country. Many warm, sheltered, sunny slopes, now almost sterile, or, if under culture, hardly paying for the seed and labour annually expended on them, might be turned to good account as Vineyards for experiment in this way. Acres are not necessary, roods would suffice. We should then, in the course of a few years, obtain some satisfactory and conclusive information upon what, as it now stands, is an undetermined question. He who endeavours to increase or improve our food supply, be it vegetable or fruit, will always receive my hearty sympathy; and, if Mr. Pettigrew does succeed in proving that Grape growing in the open air may be practised to a greater extent than we have hitherto attempted it, whether it be for ordinary purposes or for wine making, he "deserve well of this country." Instead, therefore, of expressing my conviction that the whole affair is a mistake, I shall content myself by applauding the enterprising spirit which has prompted the undertaking, and sincerely wish that the results may equal the expectations of its promoter.

Byfleet, Surrey. John Cornhill.

STRAWBERRIES FOR FORCING.

I do not think "M. C." (p. 370) will find many to endorse his opinion or follow his practice in preparing Strawberries for forcing. The object most cultivators aim at, is to obtain runners as early as possible, so as to get a long season's growth; and, as a natural result, a well grown thoroughly developed crown, that is sure to produce a strong head of bloom. A growth of this kind could not be expected from plants left to take their chance in rooting, and depending very much on the weather as to the time of doing this. Again, plants, so obtained, would have to be coddled under glass, after being severed from the parents, to keep them from flagging, unless they were taken up with balls of common garden soil, which would not be the sort of material to use in Strawberry pots, in order to obtain fine plants. Most of the best cultivators of the present day layer at once into the fruiting-pots, but do not plunge these as mentioned by "M. C.," as that would be likely to obstruct the drainage or turn the soil sour. It must be obvious that plants so layered and properly attended to with water, will be in a far better position for making an early growth, and becoming better and more quickly established than such as are taken up and potted. The former have every encouragement to emit roots, which they continue to do in rich suitable soil without receiving a single check of any kind; whereas the latter, besides being later in rooting, receive a considerable check in removal. I think if "M. C." were to try layering at once into the fruiting-pots that he would soon abandon the practice of digging his runners from the open borders and potting them up in the manner he describes. I have long since given up the practice of layering into small pots, that the runners may remain on the parent plants as long as possible, never severing them till they are nearly full grown, and it becomes necessary, for appearance sake, to remove them for the purpose of cleaning the borders. J. S.

JUDGING PEARS.

In looking over the last volume of The Garden, I noticed some very judicious remarks by Mr. Baines, on judging Pears, which escaped my notice at the time, and I was somewhat surprised at the results of some of the exhibits which he noticed; because in plant, and especially in flower judging, you have had a system which appears nearly perfect. The Dahlia, Carnation, Auricula, Pansy, and other florists' flowers have their recognised standard of merit, and we know not why fruit should not be judged by a similar standard. Many years ago, before pomology had become the familiar science of a later period, just the same errors were committed with us, and it was no unusual thing to see a dish of huge Le Curé or some other large cooking or third-class Pear turn the scale in favour of the collection in which there were such specimens; but, thanks to our horticultural magazines and pomological societies, this has long ceased to be the case. With us plant and flower judging is a more difficult task, and frequently unsatisfactory, because we have not the same class of well-informed people to call upon, who know just what is new and what is old, and what requires years of skill to produce and what may be grown up in a season. But we are young, and will soon attain to that condition of culture, which will enable us to judge plants with the same correctness at which we think we have arrived in judging fruit, and as it does not appear by what Mr. Baines has said, that you have any fixed rules, I will give you a brief account of the system adopted by the Massachusetts Horticultural Society, which works very satisfactorily, and appears to be based on the same principles which you apply to plants and flowers. Our prizes for fruits, particularly Apples and Pears, are offered for single dishes, and for collections of five, ten, fifteen, and twenty varieties, comprising twelve specimens of each variety. The system of judging is as follows:—Each fruit has four points or properties, viz., one for size, one for beauty, one for quality, and one for general cultivation, so that a perfect collection of twenty varieties has eighty points, or every dish four, and that collection which comes nearest to that number carries off the prize. Now you will see by this that such large Pears as Mr. Baines names of the Belle Angevine, Calebasse, or Catillac, whether from Jersey or the south of France, stand on their own merits, and obtain only such points as justly belong to them. Their size and often their beauty are undeniable when well grown, but every exhibitor who puts them into his collection does so at the expense of quality and value for general cultivation, which rank low enough; while such Pears as the Seckle, and Winter Nelis of only medium size, count up in quality and cultivation. To make the working of this matter plain, I will suppose a competition of two collections of twenty varieties between Mr. A. and Mr. B., and for convenience and want of space will assume that fifteen of the twenty varieties are the same in both collections, and that their size, beauty, and quality are the same, being fully up to the standard. This would give each collection sixty points. Now the other five varieties are different in each collection, Mr. A. putting up the big specimens and Mr. B. smaller ones. The result would be as follows:

COLLECTION OF A.

	Size.	Beauty.	Quality.	Culture.	Total.
Fifteen dishes, 4 points each	–	–	–	–	60
Belle Angevine	1	1	½	½	3
Beurré Diel	1	1	1	½	3½
Catillac	1	1	½	½	3
Le Curé	1	1	½	½	3
Beurré Clairgeau	1	1	¾	¾	3½
				Total Points ...	76

COLLECTION OF B.

	Size.	Beauty.	Quality.	Culture.	Total.
Fifteen dishes, 4 points each	–	–	–	–	60
Winter Nelis	1	1	1	1	4
Seckle	1	1	1	1	4
Belle Lucrative	1	1	1	1	4
Joséphine de Malines	1	1	1	¾	3¾
Lawrence	1	1	1	1	4
				Total ...	79¾

Thus it will be seen that Mr. B. gains the prize by 3¾ points, with fine medium or moderate-sized Pears, over five Pumpkin-sized varieties; and exhibitors who, for lack of good judgment, regard size as all important, will generally fare no better. But such conditions as I have supposed rarely occur, and the awards are generally more laborious to the committees; one dish will excel in size, but come short in beauty, and a half or whole point is lost. another will excel in beauty but come short in size; some dishes counting 3, some 3½, some 3¾, and the perfect ones 4; occasionally, some very remarkable dish we marked 4½, but the best collections of twenty rarely sums up more than 75. So close has been the competition that, of the three best collections, the first prize summed up 74¾, the second 73, and the third 72½. Another important quality is evenness of size as well as colour. Some cultivators, having a few extra specimens, put them in, and make out the twelve with the next best; this tells against them. Others have some quite green and others yellow, and this mars the beauty of the dish. Every stem must be entire and perfect, or this counts against them; and all spots, blemishes, or the slightest worm hole, or over ripening, will do the same, for every Pear is looked over carefully by the judges. Generally, as we have shown, the competition is very close; yet, now and then, the best collection is so much superior to all the others, that the rule is almost suspended. The good judgment of the committee at once detects the superiority without the extra labour of marking. This was the case a year ago. This year there were eight competitors for the best twenty dishes, and you can form some idea of the labours of the committee in examining the 160 dishes, containing 1,920 Pears; then there are the fifteens, and tens, and fives, and single dishes without number. Some other remarks suggest themselves in regard to the results of this system upon the cultivation of Pears, but I will defer them till another opportunity, hoping that a system of correct judging will weed out the worthless varieties and establish the real value of others. C. M. Hovey.

Boston, Mass.

STANDARD PEACH TREES IN THE OPEN GROUND.

About the middle of last September, Mr. Small, of Colnbrook, drew my attention (says Mr. Powell, in the "Florist") to three small standard Peach-trees which were growing in the open ground, and were laden with fruit, fast approaching maturity, and this without protection in the spring, or any attention whatever through the summer. The varieties were the Royal George and Galande. I have since had a communication from Mr. Small, dated September 30, in which he says:—"I have this day gathered the last of the standard Peaches which you saw here, in all 240 fruits, which ripened between the 18th and the end of the month. I may add that this is not the first time by many that I have gathered Peaches from standard trees. The fruit realised a good price in the market." The fact of Peaches ripening in the open ground in an ordinary season like the present, goes to prove that the summers, in the southern part of our island, are quite warm enough to ripen any of our mid-season Peaches without the aid of walls &c. The drawback to this mode of Peach culture is the prevalence of spring frosts. If we could get the fruit set, there would be no fear but that they would ripen. This consideration seems to suggest the adoption of some simple appliance so as to ensure the setting. Suppose that a square or a border of dwarf standard trees were planted in a favourable situation, the soil being properly prepared and well drained for their reception. After the first year's growth, the trees would require to be lifted and root-pruned, to encourage them to make short, fruitful growth, and when in that state the wood would be sure to get well ripened. The next thing to be considered would be how to protect the blossoms in the spring. I should advise that a light framework should be placed over the trees, and fitted with canvas blinds or rollers. This would afford ample protection, and after the crop was safe from risk of injury from frost, the covering should be taken away till required the following season. There would be comparatively little trouble afterwards, as the trees would be much less subject to the attacks of green-fly than those on the walls.

Red Nectarine Peach.—Those about to plant Peach trees this autumn will have no cause of regret if they obtain a few trees of this variety. It is hardy, vigorous, and free-bearing, and well adapted either for indoor or outdoor culture. The fruit is large in size, of good flavour, and firm in the flesh; it consequently bears carriage well. I have seen it growing in two counties in soils of different character, and in both cases satisfactorily. The only catalogue in which I have found it mentioned (and I have looked through many) is the fruit catalogue of the Messrs. Veitch, of Chelsea. It is there described as a new Syrian variety of great excellence.—H. J. C., *Grimston.*

Peach-house Borders.—I would advise "A. R. W." (p. 353) to add one barrowload of old mortar to every ten of soil, and mix the whole well together, with the addition of a few half-inch bones. The finest Peaches I have ever seen were planted in a similar mixture. In planting lean-to Peach-houses the most satisfactory results are obtained when standards are planted against the back wall and dwarfs on the front trellis. I consider the six best Peaches to be Noblesse, Hale's Early, Royal George, Walburton Admirable, Barrington, and Bellegarde. The three first are a little earlier than the others, and form a good succession.—J. Muir.

—— Judging from "A. R. W.'s" description of his soil, I consider it quite unnecessary to use old mortar or any other corrective, as a somewhat unctuous loam suits the Peach tree best. The following six varieties may possibly suit "A. R. W.'s" purpose, being the cream of the collection:—Galande (sometimes called Bellegarde), Noblesse, Royal George, Grosse Mignonne, Stirling Castle, and Princess of Wales, as a late kind.—A. Cramb, *Tortworth Court.*

The Seckle Pear.—Herewith I send you a sample of Seckle Pears from a tree on a west wall between forty and fifty years old, and one which always bears heavy crops. It is grafted on a Pear stock, and is very healthy. It is an excellent Pear for private gardens, but useless for market purposes, as it keeps but a short time in good condition.—W. Divers, *Wierton House, Maidstone.* [The specimens sent are the largest and finest we have seen. It is a Pear much liked by some, but we confess that its rich and peculiarly musky flavour would prevent our placing it among the very best.]

Restricting Fig Tree Roots.—Few fruit trees succeed for so long a period in a limited root area as a Fig; a fact to which the old, yet prolific, subjects that one often meets with in pots amply testify. In open air culture, on the other hand, barrenness is produced by over luxuriance and unripe wood; and therefore it becomes necessary to restrict the roots, so that short-jointed well-ripened wood may be secured. Under these conditions, an annual crop of fruit may be counted on with more certainty than in the case of any fruit grown. We have here a south wall planted with Fig trees, the roots of which are effectually confined by the back wall—sunk 3 feet deep—of a range of pits only 3 feet distant from their stems. This narrow space is used as a foot-path, and the soil has thus become so hard that no other kind of fruit tree will grow at all satisfactorily. Yet the Figs succeed admirably, and ripen their fruit considerably earlier than those having unlimited root-room. When very heavy crops are swelling off on trees whose roots are thus restricted, a few thorough soakings of liquid manure will materially increase the size of the fruit.—J. Groom.

The Best Late Peach.—I recommend "W. R." (see p. 309) to try Lord Palmerston, for a late Peach; it is really the very best of all Peaches for size and general excellence, and occupies the same position amongst late Peaches as Lord Napier Nectarine does amongst early varieties. It is by far the best, and, moreover, the character of the tree is above comparison with any other, as regards its vigour and its immunity from the attacks of all sorts of insects, mildew, and red spider; it has large shining foliage, its growth is ample, and the fruits are large; here they sometimes measure from 9½ to 10 inches in circumference. It comes in after Walburton Admirable, and those who want a late Peach cannot go far wrong if they obtain it.—John Taylor, *Hardwicke Grange, Shrewsbury.*

Russian Apples.—The Washington Department of Agricul. culture did a good thing when it imported from Russia a number of the popular varieties of Apples grown there. The success of the Tetofsky and Duchess of Oldenburg Apples, which were among the earlier importations from Russia, probably stimulated the Agricultural Department in its efforts to bring over others; and, though it is too soon to do more than begin the record of results, we ("Vermont State Journal") cannot but be pleased with the thrifty growth of these new varieties and their adaptedness to our cold winters. But two of the varieties received from the department have yet fruited; one, the Yellow Transparent, last season, and another, the Grand Sultan. They are both early autumn varieties, the former ripening with the Duchess of Oldenburg, and the latter early in September. Both are handsome and excellent Apples; the Grand Sultan particularly so, being of the largest size, a bright green in colour, becoming a rich waxy yellow in ripening. The flavour is mild, the flesh very mellow and soft, something like the Maiden's Blush in quality.

Maryland Peach Orchards.—Among the numerous large Peach orchards in Maryland, the "Centreville Record" mentions the following, belonging to Mr. John Harris, called the "Round Top Peach Farm." The "Record" says:—"The farm lies on the Queen Anne's side of the Chester River, about 3 miles above Chestertown, and contains 1,013 acres, all of which are planted with Peach trees with the exception of the 7 or 8 acres upon which the packing houses, with storehouses, dwellings, cottages, &c., stand. There are a sufficient number of these latter to accommodate over 1,000 persons. The orchard originally contained 165,000 trees, but Mr. Harris thinks that not over 130,000 are now standing and in bearing. He estimated his crop this season at about 125,000 boxes. A large steamer, with a capacity of 4,000 boxes, ran daily between the Round Top Wharf and Locust Point, at which place the fruit was transferred to the Baltimore and Ohio cars and despatched without any delay to the west, where the crop was small this year. Mr. Harris gave employment to 800 men, women, and children this season. Col. Wilkins, of Kent County, has nearly, if not quite, as many Peach trees as Mr. Harris, although they are not in one solid orchard."

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Marie Louise d'Uccle.—This is a dessert Pear of the highest merit. Here it is superior to, and ripens about ten days earlier than, the Marie Louise. Its flesh is fine-grained, buttery, and melting, very juicy, and richly-flavoured, the tree is quite hardy, a good bearer, and likes a rather heavy clay soil.—Richard Nisbet, *Aswarby Park, Folkingham.*

Desse Tardive Peach.—This is a first-class late Peach, and should not be overlooked by those who contemplate planting Peach trees. It is later than Walburton Admirable. From a tree of it under glass we have gathered fruit as late as October 20th, and it lasts in good condition a while longer in a fruit-room. —Chevalier.

Ringing Branches of Pear Trees.—Of the good effects of this I have had a striking illustration. On a horizontally-trained barren Pear tree I ringed, some two years ago, one of the branches, and it has borne good crops ever since, while the rest of the tree remains unproductive. I am afraid, however, that the branch in question will die, inasmuch as the ring was inadvertently made too wide for bark ever again to cover it.—R. B. Fuller, *Fitzroy Park, Highgate.*

Knight's Monarch Pear.—I have a tree of this valuable Pear in the form of a bush, which bears well every year. It is worked on a Pear stock. This season it produced two bushels of fruit, half a bushel of which fell before they were fit to gather. It always sheds its fruit in this way, and I leave them on the ground for some time, as they shrivel if picked up. These fallen fruit I find useful for stewing. Although a late Pear, I find it necessary to gather it earlier than some other kinds. With me it keeps up a good succession till March, and in some seasons even later than that.—W. Divers, *Wireton House, Maidstone.*

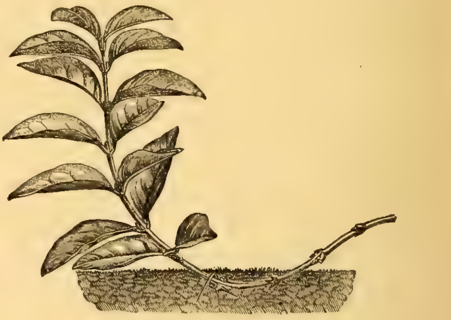
THE PROPAGATOR.

METHODS BY WHICH PLANTS ARE MULTIPLIED.

Artificial means of propagation are resorted to by cultivators in order to reproduce and multiply existing cultivated forms of useful or ornamental vegetation in the shortest possible time; while in the case of cross-breeding or hybridising, provision is made for the possible origination of new forms or varieties, instead of merely reproducing the parent plants. There are many cases in which seed will not exactly reproduce the parent plant, even when means are adopted to prevent cross-fertilisation; and then recourse must be had either to cuttings, layers, or division, by which a portion of the required individual is secured, and means adopted to induce it to throw out roots and establish itself, as in the case of cuttings. Grafts are cuttings neatly joined to a suitable stock, by which they receive the benefit of roots already formed and in working order; but it is now known that grafts are frequently changed if worked on another variety as a stock, and therefore cannot be said to exactly reproduce the parent plant, as is the case when propagation is effected by cuttings, layers, or by dividing the original in any other way.

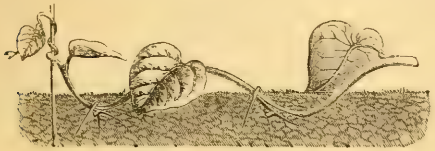
Propagation by Layers.

This simple method of propagation is principally adopted in the case of low-growing or slender plants which cannot readily or conveniently be multiplied either by division, cuttings, or seed. Lapageria rosea, L. alba, Chimonanthus fragrans, Aristolochia Sipho, and Magnolia grandiflora are a few among many instances in which layering is adopted as the best or readiest method of artificial reproduction. The operation is one of the simplest: A branch or stem of the plant or tree is bent down, and pegged or otherwise fastened or held below the soil, with its growing extremity above the ground.



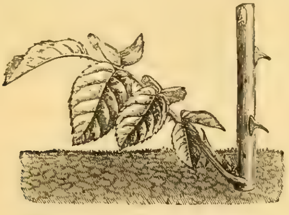
Simple layering.

In some cases, as in the Carnation, the stem is nicked or slit at a joint with a sharp knife, which causes the juices of the plant to exude and form a spongy mass of cellular matter ("callus"), as is the case in cuttings. This callus is a sure sign of the appearance of roots. This the common and most simple plan of layering, but not always practicable. The mountain will not go to Mahomet, and then Mahomet must go to the mountain. This is so in the case of erect-growing or tall-growing plants, and then a modification of layering is resorted to, exactly the same in its effects, but a little different in practice. In the case of Dracænas, which frequently become what is technically termed "leggy"—that is devoid of foliage below—it is advisable to lower them; and a pot, or the two halves of a pot, with the drainage-hole enlarged, is placed around the stem just below the leaves, and the bark is slit with a knife so as to cause a "callus" to form. The pot is then filled up with soil, and is kept continually moist. Sometimes this plan is slightly modified, a bunch of wet Moss being substituted for the pot of earth. This plan may be modified or utilised in a hundred different ways by the intelligent cultivator, and is especially applicable in the case of indoor or tropical plants and Vines, where the part required to root ("strike") is too large or otherwise inconvenient as a cutting. There is a common mode of propagating adopted in nurseries technically termed "hillock layering"—a plan as successful as it is simple. This is used in propagating the Quince, Plum, Apple—especially the Paradise, Doucin, and Nonsuch for stocks—Fig, Hazel, Magnolias, and many other hardy trees and shrubs. In this case it is necessary that the plant operated on be on its own roots. The tree or shrub is cut down nearly level with the ground during the winter. This causes a cluster of latent buds near the surface of the ground to develop themselves and form young shoots; and when this happens, a hillock of soil is raised so as to cover the base of each shoot, and the tops are pinched off, so as to induce them to throw out rootlets at the base. This they generally do during the summer; and in the autumn the soil is cleared away and the young rooted growths removed, and either potted or transplanted, as may be convenient. Such of the shoots as have not formed roots are left until the following spring or autumn; and these old stocks or stumps thus go on producing young plants for several years in succession. Some climbing or trailing plants—as double-flowered Rubuses, Wistarias, Aristolochias, Lapagerias, Vines, Figs, and others—are propagated by "multiple layering," one or more of the last year's young shoots being laid in a trench and covered with soil, except at the growing end, which is left outside to grow and keep the branch so buried in an active state. Sometimes the branches so treated are bent or partly fractured at intervals between the joints, or cross incisions or slits are made under the eyes with a sharp knife, so as to induce the "callusing" process and the development of its attendant rootlets. Long shoots or branches so treated produce several individuals, according to the number of nodes or joints, and when rooted are separated and treated as separate plants, or for stocks if requisite.


Multiple layering.

Propagation by Cuttings.

This is a very popular and, in general, expeditious mode of propagation, and, like division and layering, exactly reproduces the parent plant from which the cuttings are taken; hence these modes of propagation are often preferable to either grafting or seed, especially soft-wooded cuttings, as they develop themselves much quicker as a rule than either grafted or seedling plants. Nearly all "soft-wooded" plants—of which Fuchsias, Lobelias, and Pelargoniums are examples—are best propagated from cuttings of the stem. Many thick-leaved Begonias, Gloxinias, and Melastomaceous plants are readily multiplied by leaf-cuttings, the fully-developed leaf being inserted in a cutting-pot as a cutting. Some Begonias—as B. Rex, B. grandis, and the newer kinds—and strong-growing Melastomads, are readily propagated in this manner if the leaves are divided into pieces an inch or so square. Hoyas, Fuchsias, Gesneras, and even bulbous plants—as Amaryllis—may be reproduced in this way. In cases where cuttings cannot be obtained from the leafy portions of the plant—as in Drosera (binata) dichotoma, Dionæa muscipula, Sarracenias, and Darlingtonias—cuttings may be made by dividing the underground stems, or rhizomes, and planting the cuttings so obtained in pans placed close under the glass of the propagating-pit. Cuttings of the root succeed in a vast number of plants; and it is often necessary that the cultivator should avail himself of every portion of the plant, at a time when speed in reproduction is synonymous with commercial success. It is only in rare instances that new or rare plants can be kept for years in the propagating-pit, since time is money; for, if one firm does not supply a new plant quickly the chances are another will, so keen is modern competition in trade. Cuttings of the bulb are often resorted to, especially in the case of new Hyacinths and other bulbous flowers, the cut portions of which emit little bulbils, which are afterwards grown on up to the flowering stage. Nearly the whole of the bulb trade, however, is carried on by the Dutch florists, if we except our Lincolnshire Snowdrop growers. Many succulent plants—as Kleinias, Pachyphytums, Bryophyllums, Rocheas, and Echeverias—may be readily propagated from the leaves inserted in pots of sandy compost, while Begonias, Caladiums, Oleanders, &c., root freely in water. Cuttings may, indeed, be very variable—root, underground stems, aboveground stems, bulbs, tubers, corms, leaves, or even portions of leaves, according to the plant operated upon. Some plants, however, are very difficult to propagate from cuttings—one of these being the fragrant Chimonanthus; indeed, the late Dr. Lindley once offered a guinea for every plant of this well-known shrub raised from cuttings. Lapagerias, Aristolochias, Ipomœa Horsfalliæ, are other examples. Mr. F. Bause, when propagator at Chiswick some years ago, did succeed in inducing cuttings of the Chimonanthus to produce roots, but the tops never pushed away, and they eventually died. A correspondent of THE GARDEN, of February 14, 1874, however, writes that she raised two plants from cuttings. "They were taken during the summer when the leaves had arrived at full growth, planted in light soil in pots, and placed in the shade in a Vinery. They were kept in a cool greenhouse all the winter, and next spring they pushed forth fresh leaves. One I gave away; the other I planted against a south wall, and it is now 3 feet high and in bloom." A cutting may be defined as any portion of a plant, root, stem, or leaf which is separated from the parent and induced to form roots of its own. "Eyes" are cuttings consisting of one bud only, just as "buds" are in reality single-budded scions or grafts. These single-budded cuttings or "eyes" are generally employed in propagating the Grape Vine, and more rarely in the case of Roses and Poinsettias. A cutting may vary in size, but it is in general from 1 to 4 inches in length, and consists of a young shoot taken off the plant with a sharp knife, after which it is cut off horizontally below a joint and inserted in the earth if hardy, or in a pot of sandy soil if tender. Sometimes the lower leaves require cutting away to enable the cutting to be inserted in the soil. Soft-wooded plants, such as Lobelias, Fuchsias, and many others, will strike root freely if severed between the joints—anywhere, in fact; while Geraniums will frequently rot off unless trimmed below a joint; and this is the case with many other plants, especially if their growth be succulent; hence, as a rule, it is always best to cut or trim cuttings below a joint. Some plants propagate better from "slips" than cuttings—"slips" being short side-shoots or lateral branches slipped or pulled off so as to bring with them a heel of the old wood. As a rule, cuttings strike better in the spring and early summer than in the autumn and winter, the plants being then more vigorous than is the case later in the season. This is an important fact for amateurs; but practical propagators, with every appliance in the way of heat and moisture, can afford to ignore Nature's way of working in this matter. Many soft-wooded plants, or those of succulent habit—as Pelargoniums, Helichrysums of the H. bracteatum type, and others of similar character—are rather difficult to propagate from cuttings late in the autumn, especially in wet seasons; and in such cases cuttings taken from pot-plants which have suffered for want of water during the hot weather will be found not only to strike root more easily, but they will not damp off so readily during the winter, owing to their tissues being firmer in texture. The great secret in propagating nearly all plants from cuttings is to prevent them "flagging" or drooping from evaporation or loss of moisture after they are separated from the parent plant. It is to prevent this happening that propagators invariably use close cases in the propagation of all the more tender stove and greenhouse plants. In the case of a single pot or two of cuttings, they are simply covered with a bell-glass, which serves exactly the same purpose in checking evaporation. All the dew-like moisture you see on the lights or


Herbaceous Rose-cutting.

Rose-bud cutting.

glass coverings of the case, or trickling down the sides of the bell-glass, would have passed off into the drier atmosphere had the cuttings been uncovered; and this drying influence is prejudicial to the welfare of the cutting until it has formed roots, which, by drawing or pumping up moisture into the leaves, replace the loss occasioned by transpiration. Succulent plants—such as Echeverias, Pachyphytums, Phyllocactus, Sempervivums, Gasterias, and many others—however, do not require covering, as Nature, herself, has formed them for living in a dry atmosphere, and has given them a thick-celled skin through which the water in their leaves can pass but very slowly; and to cover these up in the manner above described as fitted to the generality of tender ornamental plants, would induce nine-tenths of them to rot or "damp off" instead of forming roots. The same remark applies to plants with soft velvety or woolly leaves, as Gnaphaliums, Centaureas of the C. candidissima (C. ragusina) type, and other plants with similar foliage, which refuse to root unless fully exposed to the sun and air, either in a sunny frame or on a shelf in the greenhouse near the glass. Cuttings or slips of many hardy Alpine and herbaceous plants, or florists' flowers—as Chrysanthemums, Pansies, Phlox, and others of a similar character—may be inserted in pans of moist sandy soil and placed in a cold pit; or an ordinary garden frame placed under a north wall is well suited for this class of subjects. Many hardy shrubs and bush fruit trees—as Laurels, Currants, Gooseberries, &c.—root freely if they are taken off in the autumn and inserted in rows on any cool sheltered border having a northern aspect. Tamarisk, Willows, and large branches 3 or 4 feet in length of some sorts of Apples of the Burr-Knot type, strike readily in this manner. Any light, sandy, moist soil may be used in which to insert soft-wooded cuttings. If, however, they are tender, or there is any danger of their damping off, as is the case with Ericas, Epacris, Azaleas, and many succulent plants, a thin layer of clean white sand should be spread over the surface of the compost in the cutting pots or pans; and the pots may, in such cases, be three parts filled with crocks, so as to ensure perfect drainage. Cuttings of many plants strike or root freely in any soft, moist substance—for example, soft-wooded plants of free growth, such as Fuchsias, Verbenas, and Lobelias, root quickly and freely in saucers of wet sand, or sand and water, if placed in an exhilarating temperature. Rose-cuttings, as well as those of the Oleander and many other plants, root freely in bottles of soft or rain water; and cuttings of Nepenthes root well in living Sphagnum Moss in a close heated frame. In the humid Amherstia-house at Chatsworth, these plants are grown to great perfection: and I have seen dozens of cuttings taken off, and inserted in the Derbyshire spar used for covering the side benches; and, treated in this manner, some of the cuttings formed great masses of black fibrous roots as large as a child's head. Common sawdust from the wood of ordinary forest-trees (not Conifers) forms a good rooting medium for many soft-wooded plants, which damp off if placed in soil or sand. Cucumbers, Melons, Ficus, Fuchsias, Gesneras, Tydæas, and many other plants, root well in a bed of sawdust and sandstone; grit or gravel is also useful in the case of succulents which are apt to damp off in ordinary soil. As a rule, however, it is best to strike cuttings in soil similar to that which suits the plant when developed; for if rooted in water, or other soft, moist substance, extra attention and care are required when such cuttings are potted, as their roots, being much more tender than when produced in soil, are apt to become bruised or broken; and even if they escape this through careful treatment, they are still liable to perish or "damp off" when placed in a colder and denser compost.

Propagation by Division.

Division is the easiest and most generally adopted method by which low-growing or spreading Alpine and herbaceous plants are reproduced. Bulbs—as Snowdrops, Narcissus, and other gregarious kinds—are also multiplied in the same way, each separate bulb being a distinct individual plant. Although the word multiplied is used here, it is scarcely applicable, since no artificial multiplication of plants has really taken place. The same number of plants existed in the clump before they were divided, only, by so dividing them, they afterwards, when planted in fresh soil, develop themselves much more rapidly than if left in one dense cluster. Nearly all plants which form low-spreading clumps or masses of root-stocks may be divided either by digging up the plants and pulling them into rooted pieces, or by cutting off rooted portions around the sides of the clumps. The scaly bulbs of many Lilies may be pulled to pieces and planted separately, and most of them, when so treated, will grow and form plants; but the bulbs of Lilies are in reality only underground stems, so that the Lily scales are really leaf slips or cuttings—just as Potato "sets" are stem-cuttings—although at first sight one would imagine that they came under the head of division, using that term in its popular and technical sense. Division, then, may be defined as the removal of any naturally rooted portion from any kind of plant, and is especially practicable in the case of low-growing and spreading kinds.

Herbaceous Cuttings.

There are but few hard-wooded plants in cultivation, whether hardy or tender, that cannot be propagated by herbaceous cuttings—that is, cuttings of the young wood taken off just as the base of the shoot begins to harden, and the lower leaves are fully formed. Cuttings of this description should be cut quickly, and at once inserted into cutting-pots or pans, or pricked into a bed of light sandy earth in a close pit or frame where a humid atmosphere can be maintained, to prevent flagging through superfluous evaporation. In the case of tender shrubs, a gentle bottom-heat of 60° to 70° is an additional incentive towards root formation, as genial heat and humidity quicken the action of the leaves, and cause the more rapid formation of the loose cellular tissue at the base of the shoot (technically "callusing"), from which the young roots proceed. Hollies, Conifers, and most other hardy shrubs and trees from which seeds are not readily obtainable, may be propagated readily in quantity by taking off herbaceous cuttings in July, or even earlier, and inserting them in cutting-pans in a close frame, taking care to syringe them lightly once or twice every day; or they may be struck in a heated propagating-case, and afterwards carefully hardened off. Continental propagators strike nearly all plants, hardy as well as tender, under cloches or bell-glasses, in a close, humid plant-house or propagating-pit, and in this way are enabled to turn out an immense stock of fresh little plants in an incredibly short time compared with our system of striking cuttings in autumn under a north wall. Nor is this all: for sometimes it is necessary to grow the plants from which cuttings are to be taken in heat in order to ensure success, taking care to keep their roots nearly dry, for many trees and shrubs make a watery or succulent growth out of doors, which is not suitable for cuttings, as they damp off instead of rooting, while young growth made in heat may actually be struck in the dampest of all mediums—soft water, in bottles suspended near the light, but shaded from bright sunshine. The propagator who would be successful must never lose sight of the great fact that the actual rooting power—or uniting power, in the case of grafting—lies in the growing or cellular tissue. We see this illustrated by the fact that soft-wooded cuttings, such as Pelargoniums, Fuchsias, Lobelias, Begonias, Calceolarias, and other plants of a similar character, are readily struck, even by village dames, who merely stick slips or small lateral branches around the sides of the flower-pots in the open window, and rarely without success. It is curious to observe that, while many gardeners strike Ericas, Epacrises, and Azaleas from cuttings, they rarely ever think of attempting to propagate new or rare Conifers, or hardy evergreen or deciduous shrubs in the same way. Indeed, to many the propagation of Conifers and hardy shrubs is, apparently, a sealed book. How often do we see, in looking over a great garden, Dracænas, Ericas, Crotons, Gardenias, and other exotics, propagated by the hundred! but how rarely are we shown a batch of young Hollies, Abies, Piceas, or a pan filled with rooted cuttings of some rare and beautiful hardy Conifer or ornamental shrub!—and yet the one is just as easy to propagate from cuttings as the other.—"The Gardener."

MOSS.

Strange tapestry, by Nature spun
On viewless looms, aloof from sun,
And spread through lonely nooks and grots,
Where shadows reign, and leafy rest,—
O Moss, of all your dwelling-spots,
In which one are you loveliest?

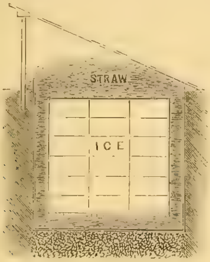
Is it when near grim roots that coil
Their snaky black through humid soil?
Or when you wrap in woodland glooms,
The great prone Pine trunks, dotted red?
Or when you dim, on sombre tombs,
The *requiescats* of the dead?

Or is it when your lot is cast
In some quaint garden of the past,
On some grey, crumbled basin's brim,
With conchs that mildewed Tritons blow,
While yonder through the Poplars prim,
Looms up the turreted chateau?

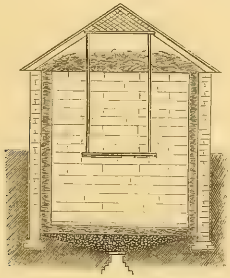
Nay, loveliest are you when time weaves
Your emerald films on low, dark eaves.
Above where pink porch-Roses peer,
And Woodbines break in fragrant foam,
And children laugh, ... and you can hear
The beatings of the heart of Home.

CHEAP ICE-HOUSES.

I HAVE seen an ice-house (if, indeed, it was worthy of being called a house) made by excavating a pit 8 feet square, and 8 feet deep, into a bank of gravel that was so porous that the drainage from the ice was amply provided for. The sides of this pit were lined with 2-inch plank; the bottom covered with fine Spruce boughs, and Wheat straw to the depth of a foot. On this strips of old fence boards were laid, covering, perhaps, one-third of the whole surface. On these boards a cube of ice, 6 feet on all its sides, was placed. The ice was cut in cakes 2 feet square, and carefully laid, and having square edges, and being of uniform thickness, there was but little air between them. Over this 6-foot cube of ice a foot and more of straw was placed, and on all of the sides, the space between the ice and the plank sides of the pit was filled with firmly packed straw. To keep out the rain some boards were placed over all, one end on the ground, the other on a piece of scantling supported by stakes driven into the ground, and about 4 feet high. The ends and one side of this slanting roof of boards were open to the weather, and the winds blew freely over the straw that covered the ice. In this rude affair the ice kept well, and supplied the family all the summer with all they wanted. I do not say that this ice-house of least cost, is the best that can be made, but, cheap as it was, it was made so as to comply with the great requisites involved, and it did perfectly envelop the ice in a good non-conductor of heat, and it kept that non-conductor dry by good drainage at bottom, and a free circulation of air on top. Sawdust is better than straw, but sawdust was not so conveniently had, and the difference between the two substances is not so great as is generally supposed.



Section of an ice house.

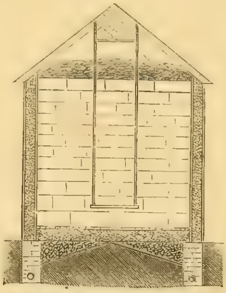


Section of stone house—ice half below ground.

I have tried both straw and sawdust for many years, and now think that the principal value of sawdust over straw for packing ice is to be found in the convenience of handling, and in its lasting qualities. Sawdust may be used, if properly managed, over and over for many years. There is considerable difference of opinion in regard to whether the ice-house is best when all above the surface or all below. In reality there is nothing in this point, and each person will suit his convenience in regard to it. In a clayey soil, where drainage is difficult, it may be best to build all above ground, and in large structures it may be best to put them all above ground, but for a small ice-house, intended to supply only a few families, and which is to be filled by the hands of men, without the aid of horses or steam engines, convenience in filling will be promoted by having a part of the ice-house below the level of the surface of the ground. The sill of the door should be just level with the top of the sled that brings the ice, and the door sill should be half way from the bottom to the top of the ice when the house is full. In this mode of construction, half the ice will be lowered to its place and the other half raised. The door should be 3½ feet wide, and reach to the roof. The air should circulate freely over the top of the sawdust or straw, or whatever substance is placed on the top of the ice. If this point is not regarded the moisture that will rise up from the ice, or that will condense from the air, will in hot weather make the covering damp—and, if damp, it will decay, and cease to be the good non-conductor it was, and the ice will waste from the top.

A Wooden House.

Planks rot out very soon when used for the walls of an ice-house, and when the house is partly under ground the decay of timber is so rapid that brick or stone will generally be found more economical—not that a stone house keeps the ice any better than one of wood, but it lasts longer. Some twenty years ago, I constructed an ice-house for the use of several families, that I consider so well adapted to ordinary farmer's use that I give herewith a drawing that will enable any person to make one like it. Between the stone walls and the ice is a space of 1 foot that is to be filled with sawdust, and the bottom is made as shown in the drawing, by giving the natural earth a hopper-form, and in the middle sinking a well into the gravel several feet, and stoning it up so that its top is covered by a flag, and over this is placed loose stones, principally the spalls made from the walls in the course of their construction. When so levelled up, the whole was covered 1 foot deep with Spruce Fir boughs, laid with some care, and enough of them to be 1 foot thick when loaded by the ice. On these boughs were laid narrow boards to make all even, but with wide cracks between, covering about two-thirds of the whole space. The roof is simply an ordinary shingled affair, with no attempt to keep the heat from going through it. Nor is there any shade tree to keep off the sun, but there is over the door an open lattice work, and in the back end of the building another that allows a free circulation of air, but does not allow birds or other like unwelcome guests to go in.



Wooden house—all above ground.

How it is Filled.

For convenience in filling the door is taken off the hinges and placed out of the way. In the centre of the roof a hook is placed, in which a single tackle-block is fastened, and a rope passes through it, one end having strong ice-tongs attached that grasp a cake of ice on the sled, and men on the "fall" hoist, and others on the sled push, and the cake is swung in and placed without breaking. On the bottom described we place the cakes, 3 feet long and 2 feet wide; twenty-four of them make one layer. Having raised the ice 2 feet or so high, we place sawdust around it and tramp it down hard, filling the space of 1 foot thick between the ice and wall as solid as we can. More ice is then placed, and the filling goes on, the sawdust being kept along with the ice until the cube of 12 feet of ice is completed. Over the whole sawdust or straw is filled, so as only to leave space for entrance to get ice and for circulation of air. In the door-jambs cleats are fastened, against which short moveable boards are placed as the ice is put in to hold the sawdust against the ice in the doorway. These short boards are taken out as the ice is used in summer. This ice-house is being filled the twentieth time, as far as memory serves me; the bottom, of Spruce Fir boughs, has never been moved or replaced, and there has never been a time when the house did not have ice in it, except when we have cleared out some cord or two each winter to make room for a new supply, and we use the same sawdust over, having generally to renew each season about as much as a waggon load—say 40 bushels—to make up for waste. The only change made has been to remove a lining that was originally put in. This lining was simply inch boards nailed to wide studs, and was intended to hold the sawdust of the sides in place. In about three years the boards had so rotted that we renewed them and the frame to which they were fastened, and since then we have placed our ice and filled around it as described. I have only mentioned this attempt to line the ice-house with boards to show how vain the effort proved to save the labour of moving the sawdust out and then taking it back each year.

Frame House Above Ground.

Ice-houses all above ground are, in places where drainage of one partly underground would be difficult, perhaps the best. Their construction is perfectly simple, if made of stone or brick—and if made of wood are quite satisfactory as long as they last. The directions that follow will be sufficient. Studs, 12 inches wide, and 2 inces thick, and 12 feet high, are placed on 2-inch plank sills of the width of the studs, these sills being placed on top of gable wall that fills a trench 2 or 3 feet deep, give the outlines of the frame. Board on these studs, both sides, with well nailed inch boards. Fill the spaces between the boarding and studs with well-rammed saw-dust reaching from sills to top of studs. Make a floor as described for stone ice-house, partly under ground—only reversing the form of the earth under—that is, making the centre higher than the sides, that the water that forms from the ice may run freely outward to the drains under the sills. An ice-house so constructed will be filled out to the boarding of the sides, and covered over with sawdust or other non-conducting substance.

Thickness of the Ice and Packing.

This point is of less importance than is usually thought. Convenience of handling requires that the cake should not be much over 8 or 10 inches thick, and half that thickness will keep well in summer if properly packed and cared for. The dealers of ice generally place the cakes on their edges, as they are every day, during the season of consumption, taking out of the house large quantities, and it is convenient to take hold of the cakes with the ice-hooks when they are standing on edge. But for ordinary family use, I always prefer placing the large ice cakes flat-wise, as, by removing the covering it is easy, having a proper tool, to cut the cakes as they are found into convenient pieces for use, exposing but little surface to the air while taking out the supply. I think the ice keeps better when the widest parts of the cakes rest on each other. Less air finds its way between. But this is principally a matter of convenience. Persons who have not tried freezing the whole mass of ice into one solid body are often giving advice to use water in a cold day to freeze the cakes, and fill up all spaces between them with ice thus made. Quite likely such a solid mass will keep well, but the difficulties attending chopping it out, and breaking it into chips and splinters as used, are so great that such a mass of ice is of very little value. I have tried this plan, and have made ice in the house by using a jet of water that froze as it fell, and formed a solid mass, that the next summer was of very little value, as it could not be taken out in any convenient form, and the labour of chopping it out was more than would have been required to cut, draw, and place in the house. And I have tried freezing the cakes into a solid mass by using chips and water in a cold day, and have given up all such notions.

Co-operative Ponds.

In nearly every district with which we are acquainted there is some valley having a spring or stream of water that may be ponded up, and furnish a supply of ice for the vicinity. Co-operation of a few residents in making the embankments and furnishing the tools to handle the ice, will make the cost but little to each. We have such a pond, containing a little more than 100 square rods of surface, the water being from 1½ to 3½ feet deep. The water of a small stream is set into this pond when cold weather comes, and it is kept full, and no water allowed to pass through it, and only enough supplied to keep the surface at one uniform height. Water thus confined and kept from being changed by a stream passing through the pond will, if it be shallow, make ice in any winter, and generally make two or more crops of a proper thickness. When the neighbours are supplied, the water is to be drawn off, and the land used to raise Grass the next summer. This is a matter now so small as not to justify the use of the costly tools that the great dealers find it profitable to use. We cut our ice by hand, having first marked out the cakes, and using a common cross-cut saw, one handle being taken off. The ice is shoved by using pike poles, over the dam on a slideway, having sides to keep the cakes on, and, once over the top of the dam, goes by gravity 40 or 50 feet to a sled, where it can be loaded very easily. The dam where the sideway goes over it is not more than a foot above the surface of the ice in the pond. Two men mark out and cut the ice. Two more run it over the dam and load it. One boy drives the horses, bringing his sled to the end of the slideway, and is loaded and away in about five minutes. He goes to the ice-house, which is distant about 500 feet, and draws his sled in front of the doorway, unhitches his horses, leaving his loaded sled, and hitches to another that has just been unloaded, and goes for more ice. Men at the house pack the ice, and about a quarter of an hour is required for a load that contains from 50 to 60 cubic feet. When the house is nearly full and the work of hoisting the ice and packing the sawdust is more than at first, the average falls to three loads an hour. Freezing hard water makes ice that, on being melted, gives soft water. That is, the lime held in solution is precipitated in freezing. Though the water that makes our ice is very hard and full of lime, neighbours, whose cisterns are out, are now drawing ice from our pond to be melted and used for domestic purposes; and I am inclined to think that the process of freezing so purifies the water that ice alike good will be made by all our ponds and streams. Many people fancy that ice so transparent and clear that a newspaper may be read through a cake that is a foot thick, will keep better than ice that is opaque and made by freezing water full of snow. This is an erroneous impression, as I have proved many times, as the cakes that have been left out of the ice-house, for present use, have gone to pieces the next great thaw. Cakes that were perhaps 10 or 12 inches thick, the upper half made from water full of snow, lead coloured, and perfectly opaque, and the lower half transparent—as these cakes fell in pieces, the transparent part went first. It is true the transparent looks the best, but in reality it is no better, if as good, as the opaque, for all purposes for which ice is used.

A Cheap Refrigerator.

I have known of many attempts to combine ice-keeping with milk-rooms and the like, and many years ago I tried many experiments in burying fresh meat in baskets in the ice-house, but with no satisfactory result. Places for the keeping of butter, &c., under the ice, I have seen tried, as well as in rooms alongside. The teaching of all these trials is to make an ice-house to preserve ice, and take the ice therefrom as required, and consume it in preserving provisions in a good refrigerator, and such a refrigerator is about as much a necessity for good and comfortable living as the ice itself. A large cask, cut off at one end so as to reduce it to about two-thirds its length, makes a very cheap outside shell, and a smaller cask set inside—the space at sides and bottom filled with broken charcoal—with tight double covers, the sides properly shelved, gives a very cheap and useful refrigerator, and, if not costly and tasteful enough to suit, more expensive, but scarcely better, may be bought in every town.—" Tribune."

Potatoes and Wireworms.—If Mr. Clapham (see p. 402), who has found his Red-skin Flour-ball Potatoes so eaten by wireworm this year will try the following mode of prevention, I believe he will find his crop free from these pests next season. For the generality of Potatoes grown here I use, when planting them in the drills, a slight covering of manure over every set made of old tan mixed with soot. All the earliest varieties, such as Lee's Early Kidney, Royal Ashleaf, and Yorkshire Hero, were planted with this manure this year, and were all lifted with very clear skins, and free from both disease and wireworms. It was likewise used for the later crops of Potatoes; but, although there was much disease amongst the tubers, no wireworms had eaten them. Where old tan cannot be had coal or wood ashes or dry earth of any kind would do to use with the soot.—William Tillery, *Welbeck.*

Spanish Substitute for Potatoes.—Can anyone tell me whether I can purchase in England a kind of Pea or Bean—in fact, a grain something between the two—much used for the table all throughout Spain, and there called Garbanzos (pronounced Garbanthos)? In Spain it takes the place of Potatoes in all ordinary dinners, and I used to find it an excellent substitute for that esculent. The grain I speak of is longer than a Pea, creamy-white, and a little rounder in shape than the common Horse Bean.—Hispaniola. [Garbanzos is the Spanish name of Cicer arietinum, the Chick Pea, or Egyptian Pea of the English, the Cece of the Italians, and the Gram of India. It is an annual which grows about a foot or more in height, and is a native of the south of Europe, and also of India. Its pods are 1 to 1½ inches long, of a rhomboidal form, with puffed-out sides, and generally contain two Peas, but sometimes only one. The peculiar form of these Peas has given rise to the specific name of the plant, arietinum, which alludes to their supposed resemblance to a ram's head. Small quantities of these Peas come to this country from Turkey, but we do not know where they can be bought.]

TREES AND SHRUBS.

TRENCHING NEW PLANTATIONS.

Wherever planting operations are intended to be carried out, whether it be in orchard, shrubbery, or wood, it is important if a profitable result is desired, that the ground should have been previously well prepared. Whatever is worth doing at all is worth doing well; and although trenching, whether it be done with the spade or with the steam plough, involves a good deal of expense, still I am convinced such operations will, in the long run, pay. The most thriving plantations with which I am acquainted were trenched 20 inches deep, and the bottom of the trenches well broken up with the pick, the subsoil (poor sand) was brought up to the top, and the top spit placed in the bottom. It should always be borne in mind that, in a plantation of young trees there is very little chance of improving the lower stratum of soil after they are once planted; but, in the preparation of the ground, if the bottom spit is brought to the surface, the exposure to the air, together with the falling leaves and other decomposing vegetable matter, will materially improve it. I grant the young trees may not start so rapidly during the first year or two, in consequence of the best soil being placed at the bottom of the trench, but as soon as the roots begin to strike downwards, the effect of the deepening of the soil will soon be apparent, and in ten years it will be still more remarkable. Of course it is only in new plantations where trenching can be properly carried out. In the south of England and other places, where the undergrowth stands till it gets large enough for Hop-poles, there are always vacancies to be filled up after every cutting. Spanish Chestnut and Ash are generally used for this purpose, and by digging large holes the plants in time become established and do pretty well; but if, instead of filling up a vacancy here and there, a large break had to be planted, the expense of digging wide holes and planting would be as much or more than trenching, and the result by no means so satisfactory. Trenching, in some instances, is, however, impracticable and undesirable. In one of the most thriving young plantations of Scotch Fir with which I am acquainted the young seedlings sprung up spontaneously, and all that was necessary was periodical thinning of the young trees. E. Hobday.

Ramsey Abbey.

The Golden Retinosporas.—It is somewhat singular, says Mr. Cramb, in the "Florist," that we so seldom meet with this class of plants in our pleasure grounds. This omission certainly cannot arise from their extravagant price, but rather, I should imagine, from an imperfect knowledge of their merit. In no case should they be planted in close shrubberies, for obvious reasons. They are impatient of confinement, their colour suffers, and they lose their bottom branches by the rapid advance of their more vigorous neighbours, unless constantly kept in check by a watchful eye. It cannot be said that they are particular as to soil, only they dislike the limestone, and the chalk still more. In either the habit becomes stunted, and the foliage assumes a singed appearance, which is anything but pleasing. Even when growing freely, the pretty Golden Retinosporas are apt to produce strong side shoots, which, if allowed to go unchecked, rob the terminal leader of its power, and thus gives the plant a squat or spreading habit. There are several golden kinds of Retinospora, but among them the best and those of the most decided colour will be found in R. obtusa aurea, R. pisifera aurea, and R. pisifera nana aurea.

NOTES AND QUESTIONS ON TREES AND SHRUBS.

Town Shrubs.—Enclosed is a small sprig of a Eugenia which has stood in an open border of Merrion Square, Dublin, for four years, uncovered, but in a sheltered position. No part of the bush, which is about 2½ feet high, and nearly round in form, is less healthy than the vigorous little specimen which I send. This time last year it bore an abundance of ripe fruit.—John Adair. [The Eugenia sent is apiculata, a Chilian shrub, and one which is about as hardy as the common broad-leaved Myrtle in the neighbourhood of London.]

Cupressus Lawsoniana fragrans.—Of the many beautiful varieties of this very variable Cypress this one, described by Mr. Balfe, in the "Farmers' Gazette," is the prettiest. Its excellent habit, deep verdure, and Fern-like spray combine to give it a foremost place. Anyone visiting Glasnevin, and seeing the handsome specimen of it there, will scarcely hesitate to endorse the favourable opinion now expressed with regard to this variety. Why distinguished by the present name we fail to discover, as there does not appear to be any special or peculiar fragrance about it.

ROYAL HORTICULTURAL SOCIETY.

November 10th.

The November exhibition of this Society, viz., the Chrysanthemum and Fruit show, is generally a good one, and this year it was better than usual. Chrysanthemums, both plants and cut flowers, were limited in quantity, but good; the chief interest of the meeting, however, was the beautiful groups of new and rare plants staged by Messrs. Veitch, Mr. B. S. Williams, and Mr. J. Wills, and the superb collections of fruit. Pines were splendid, and Apples and Pears, which occupied the whole of one and and a part of another corridor, were, in all respects, perfect. Considerable dissatisfaction was felt, as in former years, by the English fruit growers, being obliged, owing to the framing of the Society's schedule, to compete with the Jersey fruiterers, who, having an opportunity of selecting from a large quantity of samples, win all the best prizes.

First-class Certificates.—These were awarded to the following new or rare plants, &c.:

Echeveria pachyphytoides (Croucher).—This is evidently a hybrid between one of the spathula-leaved Echeverias and Pachyphytum bracteosum. It is of robust habit and bears a curving bractate flower-spike, as in Pachyphytum. The leaves are about 4 inches in length and about an inch broad at the widest part, from which they suddenly contract to a blunt point; the leaves are glaucous.

Echeveria rotundifolia (R. Dean).—This is a distinct and effective hybrid, and is the result of crossing E. glauca metallica, one of Mr. Seden's hybrids, with the dense-habited E. secunda major; well developed three-year-old plants are 9 inches across, and form perfectly symmetrical rosettes of thick glaucous leaves. As a dot plant in the now fashionable carpet bedding, for succulent beds, or as a choice pot plant for greenhouse or conservatory decoration this well deserves attention. It is evidently a most robust grower.

Cattleya Minas (Denning).—This is a robust-growing plant of the C. marginata or Lælia pumila type, having glossy cylindrical one-leaved pseudo-bulbs, and bearing rosy-lilac flowers of great substance. It has a very broad column, curiously flattened, as in Lælia præstans, and a pale lip delicately streaked with rosy-crimson. It is a little gem, and will be liked by all who are fond of choice Orchids.

Tree Carnation Mrs. Fowler (Turner).—This is a robust-habited plant, with fresh and vigorous foliage. It is a very profuse bloomer, the flowers being borne in axillary clusters three or four together. It is of a bright rosy colour, and ought to be valuable wherever cut flowers are desired.

Tree Carnation Sir Garnet Wolseley (Turner).—A dwarf-habited variety, and evidently very free-flowering, the foliage being remarkably fresh and vigorous, and the growths short-jointed and compact. The flower is of a brilliant orange-scarlet, flaked or elegantly frilled with crimson. This is a brilliant and first-class variety, valuable, like its congeners, for winter blooming.

New and Rare Plants.—Messrs. Jas. Veitch & Sons contributed an effective group of rare and distinct hybrids, the joint productions of Mr. Dominy and Mr. Seden, one plant (Nepenthes intermedia) being the production of Mr. Court. Among these we noticed Cattleya Dominiana, pale rose, lilac-purple lip; C. exoniensis, Cypripedium vexillarium, C. Harrissianum, C. Dominii, C. Sedeni, C. Arthurianum, and C. Marshallianum, the last of the new hybrid Lady's-slippers, and the result of a cross effected between C. concolor and C. venustum var. pardinum. In habit and flower it most resembles C. concolor, but the leaves are broader and have the characteristic markings of C. pardinum. The flower is of a creamy-yellow colour, suffused with glossy rose-pink, and dotted with very dark purple spots; the lip is pea-green, dotted near the mouth with brown, and laterally compressed. Dracæna hybrida is a very high coloured form, having creamy foliage, suffused with clear rose, its lower leaves being bright green; Alocasia Sedeni, a cross obtained between A. Lowii and A. metallica; Rhododendron Princess of Wales, a crimson-scarlet variety of first-class merit, the result of crossing Princess Royal with R. Lobbii; R. Queen of Denmark, orange-crimson with a yellowish tube, the result of a cross between R. Princess Helena and R. Brookei gracile; R. Princess Alexandra is a white-flowered form with orange anthers, and is a cross between R. Princess Royal and R. Brookei; R. Princess Thyra is a cross between R. Princess Helena and R. Brookei gracile and bears pale rosy flowers; R. Princess Royal is a bright rosy-flowered form obtained by crossing R. javanicum with R. jasminiflorum. All these are greenhouse Rhododendrons with the R. jasminiflorum habit of growth, and are, of course, valuable additions to this class of plants. Dracæna Taylori is a robust broad-leaved bronze variety, a hybrid between D. Mooreana and D. magnifica, and Alocasia Veitchii superba is a very effective plant obtained by crossing A. Veitchii with the long-leaved A. Lowii. Calanthe Veitchii is one of the best of all rosy-flowered Orchids belonging to the deciduous class. Among the Nepenthes or Pitcher plants we noticed very robust specimens in baskets of the following:—N. Chelsoni, N. hybrida, N. hybrida maculata, N. Dominii, N. Sedeni, and N. intermedia. These, apart from their variety and beauty, fully deserved all the attention which they received from horticulturists as being the most useful and valuable group of garden hybrids ever brought together. Mr. Wills exhibited about forty cross-bred Dracænas, for the most part crosses between such species and varieties as D. terminalis, Cooperi, Regina, concinna, Ferrea, excelsa, Chelsoni, and limbata. They may be divided into three tolerably distinct groups—first a dwarf narrow-leaved race, the plants belonging to which will be useful for table decoration;

second, a group of robust-habited plants of the Cooperi style of growth, varying from 2 to 3 feet in height, and having deep bronzy recurved foliage, variously margined and streaked with creamy-yellow, crimson, or carmine; the third consists of plants with an erect or D. terminalis-like habit, the foliage being deep bronzy-green, edged and streaked with creamy-yellow, rose-salmon, or crimson. Messrs. Veitch & Sons also staged a very effective collection of Orchids and other rare plants, among which we observed the following:—Cattleya labiata, a fine piece of the true old form in splendid condition, bearing six flowers on two spikes; Barkeria Lindleyana var. Centeriæ, one of the prettiest of all Orchids; a noble plant of Vanda suavis, over 4 feet high, bearing three fine spikes; Chysis bractescens, one of the most attractive of all Orchids, bearing a four-flowered spike of waxy white flowers; Cypripedium Schlimii, Odontoglossum madrense, bearing a strong five-flowered spike of fragrant flowers; Masdevallia Veitchii, Cypripedium Ashburtoniæ, the snowy white ruby-spotted Odontoglossum Alexandræ, the vivid orange-scarlet Sophronitis grandiflora, and many others. Croton Lord Cairns and C. Disraeli were staged in this group, and are remarkable for their distinct halberd-shaped or three-lobed leaves of a deep green colour, mottled and margined with golden-yellow. A plant of the lovely blue Exacum zeylanicum bore six trusses of flowers. Mr. B. S. Williams, of Holloway, furnished a choice assortment of Ferns, Palms, and flowering plants, amongst which we noted Ceterach aureum, a rare Fern from Teneriffe, little seen in cultivation; Griffinia Blumenavia, a bright green foliaged Amaryllidaceous bulb, bearing bright bluish or lilac-purple flowers of great beauty. Messrs. Veitch & Sons sent a yellow-fruited Yew and other new Conifers. Mr. R. Dean contributed an effective group of Echeverias grown in pans and, in one or two cases, neatly margined with Sedum Lydium and other dwarf bright green species. Among these we remarked E. secunda, E. secunda glauca, E. pumila, a more elegant-habited plant than the last, and with longer rosy-tipped leaves; E. secunda major, a close-habited, symmetrical, and desirable form; E. glauca metallica, a cross between the plants named. The same exhibitor also staged cut flowers of Phlox Drummondii splendens grandiflora, a white-eyed crimson-flowered form, with flowers as large as a shilling. For cut flowers and pot culture this is a most valuable variety, and one which may be had in bloom nearly all the year round. Mr. Croucher furnished E. Schedeckerii, a neat-habited plant, intermediate between E. secunda glauca and Pachyphytum bracteosum. A fine fruit of Stephanotis floribunda, exhibited by Mr. Harry Veitch, attracted considerable attention; it had been grown by Mr. H. Hepburn, Scarisbrook Hall, Ormskirk.

Chrysanthemums.—These were fairly represented. Mr. Charles Turner staged twelve well-grown specimens of the large-flowered varieties in excellent condition. Among these we observed Jardin des Plantes, yellow; George Glenny, creamy-yellow; Virgin Queen, white; Mrs. G. Rundle, white; Lady Harding, rosy-lilac; Hereward, purple; and Guernsey Nugget, pale gold. From the same exhibitor also came a large and effective group of mixed varieties, the colours of which were well-blended and distinct. Mr. Turner also staged the best large-flowered single specimen, the variety being Mrs. G. Rundle, bearing twenty-five fine blooms. The best Chrysanthemums, from a decorative point of view, in the exhibition, were six splendid specimens, staged by Mr. W. Hall, gardener to W. Stevens, Esq., Springfield, Tudor Hill. These were dwarf and nearly perfect, the varieties being Mrs. G. Rundle, Dr. Sharp, crimson; Lady Harding, Mrs. Gladstone, crimson-brown; Prince of Wales, crimson, backed with lilac; and George Glenny, a soft yellow sport from Mrs. G. Rundle. Mr. J. Herrington was second with six good plants but scarcely so even, either in growth or bloom, as the last. The Pompon classes were well contested, Mr. W. Whittaker being first with six good plants, including Marie Stuart, an elegant Anemone-centred flower of a soft-rosy colour; Cedo Nulli, white; Antonius, Anemone-centred golden-yellow; La Folie, creamy-yellow; Arabella, rose; and Mdlle. Marthe, white. These were well flowered and neatly trained. The best specimen Pompon came from Mr. A. Harding, gardener to the Rev. M. Arthur, Clapham Common, the variety being Mdlle. Marthe, an excellent double white. Mr. A. Harding staged twelve Pompon varieties, well flowered, and variously trained. Among these we remarked Bob, crimson; Antonius, gold, lilac, white, and yellow; Cedo Nulli, Helene, purple; Astræa, rose; Calliope, red; and others. Messrs. Veitch & Sons furnished an attractive group of large flowered and Japanese Chrysanthemums, not for competition. Among these were Empress of India, white; Alfred Salter, rose; grandiflorum, golden frilled; Fair Maid of Guernsey, white, very large, and fine; The Cossack, bronze, tipped with gold; The Sultan, rosy-purple, and many others of superior merit.

Miscellaneous Plants.—Mr. Turner exhibited six Bouvardias in pots, among which we observed Hogarth, Vreelandii, and jasminiflora. Mr. Aldous had fine plants of B. jasminiflora. Mr. Turner had also six tree Carnations in pots, among which were Lord Dundreary, rosy-lilac; Balaclava, scarlet; Jessica, a beautiful fringed white; Hermann Stenger, yellow and crimson, a fine flower; and Sir Garnet Wolseley. White Roman Hyacinths of remarkable freshness and beauty came from Mr. J. Aldous and Mr. T. Lambert. Messrs. W. Paul & Son contributed a basket of the beautiful golden Euonymus flavescens, which ought to be invaluable for winter carpet bedding associated with evergreens. From the same exhibitor also came a beautiful group of Euonymuses, Skimmias, Cratæguses, Cotoneasters, Pernettyas, Snowberries, Privet, Sea Buckthorns, red and yellow-fruited Hollies, &c. With these were likewise staged some effective autumn-foliaged plants, such as Sumachs, Maples, Acacias, variegated and golden-leaved Oaks, Thorns, Sweet Chestnuts, and others. From Mr. Turner came thirteen specimen Ivies, trained on spindle-shaped trellises, and varying from 3 to 5 feet in height; so grown, and allowed a considerable amount of freedom, the green and variegated varieties form very attractive decorative plants for front halls or cool conservatory corridors. Mr. H. B. Smith of Ealing Dean Nursery, sent a large group of brilliantly coloured Persian Cyclamens in small pots, and Mr. Ford, Leonardslee, Horsham, staged some very beautiful cut sprays of Celosia pyramidalis, the colours of which were rosy, crimson, purple, carmine, and yellow. Mr. J. Aldous showed an effective group of Palms, Ferns, Epiphyllums, Chrysanthemums, and other decorative plants.

Fruit.—Messrs. Lane & Son sent a collection of ten varieties of Grapes, among which we remarked Gros Colman, with fine well-finished berries, perhaps the best of all late Grapes; Mrs. Pince's Muscat, perfect in colour, showing that this excellent and richly-flavoured Grape is also one of fine appearance when well grown. The Alicantes in this group were also very fine examples of good culture, as were likewise the Muscat Hamburghs, and two excellent clusters of Muscat of Alexandria, of the clearest golden or amber colour imaginable; Gros Guillaume (Barbarossa) and Trebbiano were also represented by large clusters. In the class for three clusters of Black Hamburgh, Mr. Coleman, of Eastnor Castle, was first with three excellent bunches, in point of colour and fruit, although not so large as others staged. Alicantes were well represented from numerous exhibitors, Messrs. Lane taking the first award, while Mr. Allward, gardener to T. G. Barclay, Esq., Hatfield, was second with fully as large, but scarcely so well-finished bunches. Mr. Monro, of Potter's Bar, sent three well finished clusters. In the class for Muscats some excellent examples were staged, Mr. J. Atkins, of Wantage, being first, with three nearly perfect clusters of a clear amber colour. Mr. T. Wattam was a good second, while the fruit from other exhibitors was far above the average. In the class for three bunches of any black variety, Mr. Wildsmith, of Heckfield, was first with large and well finished Gros Colman. Mr. N. Kniller, Basingstoke, was second with excellent clusters of Lady Downes. In the class for weight, Mr. T. Wattam was first with a splendid bunch of Black Alicante, weighing 10 lbs., and, apart from its size, it was a remarkable specimen of good culture. The second prize went to Mr. Bannermann, who had a large cluster of Barbarossa weighing 7 lbs. 13 ozs. In the class for white Grapes, any kind except Muscats, Mr. Wattam was first with large well coloured bunches of Foster's Seedling, Mr. Wildsmith being second with well-finished fruit of Trebbiano. A splendid basket of Gros Colman, weighing 17 lbs. 8 ozs., came from Mr. G. Thomas, Oakleigh Road, Whetstone. These were well grown and beautifully finished. Messrs. Lane had three good clusters of Mr. Pearson's new Grape, Dr. Hogg, a round-berried white Grape, good in flavour.

Pines.—These were well represented, thirty-two fruits, very far above average quality, being staged in the class for two Queens. Mr. Scammell was first with excellent specimens, the collective weights of which were 10 lbs. 6 ozs.; Mr. Ross was second, and Mr. Harris third, the variety being different in each case. In the class for Smooth Cayennes, Mr. Jones, Royal Gardens, Frogmore, was first with two well grown fruit, handsome in all respects. In the class for six Pines, Mr. Jones was again first, with six of the finest Smooth Cayennes we have ever seen staged. In the class for one Pine, Mr. Jones was likewise first with a very fine and highly-coloured Smooth Cayenne; Mr Scammell being second with a Queen weighing 5 lbs. 6 ozs., and Mr. G. F. Miles third with a handsome broad-leaved Montserrat. An extra prize was awarded to Mr. Miles for three fine fruit of Black Jamaica.

Pears.—Of these large quantities were shown both by home and other growers. In the class for eighteen varieties, Mr. J. Pluck, of Jersey, was first, with Beurré Clairgeau, well coloured Glou Morceau, Beurré Diel, Duchesse d'Angoulême, Grosse Calebasse, Beurré Bosc, Columbia, Beurré Bachelier, General Todleben, Doyenné du Comice, Chaumontel, Colmar d'Arenberg, and others, the specimens (six) of each variety being remarkably fine. Mr. Thomas, also a Jersey fruiterer, was second, with nearly the same varieties, his finest dishes, as far as appearance is concerned, being Beurré Clairgeau, marvellous in size, and the Trout Pear or Forelle, most beautifully coloured, and varying from 4 to 7 inches in length. In the great class for eighteen varieties, Mr. C. Haycock, gardener to R. Leigh, Esq., Barham Court, Maidstone, was third, with really excellent home-grown fruit. In this group we noted Doyenné du Comice, Beurré d'Anjou, Emile d'Heyst, Beurré Bachelier, Glou Morceau, General Todleben, and Conseiller de la Cour, very fine. In the class for six varieties of dessert varieties, Mr. A. Fowler, Dogmersfield Park, Winchfield, was first with Flemish Beauty, of excellent quality, Pitmaston Duchess, Duchesse d'Angoulême, Beurré Clairgeau, Beurré Diel, and Conseiller de la Cour. These were very fine specimens of good culture, and superior in quality to the Jersey fruit. Mr. Thomas, Jersey, was second, his dishes of Beurré Clairgeau and Trout Pear being very fine, and Mr. Parkins, also of Jersey, had fine examples of Glou Morceau, Beurré Diel, Chaumontel, Easter Beurré, Trout, and Duchesse d'Angoulême. Mr. J. Pluck was second for six dishes of dessert Pears, among which were fine samples of Glou Morceau, Chaumontel, and Van Mons Léon le Clerc. In the classes for dishes of particular varieties, Mr. J. P. Arnold, gardener to G. Wood, Esq., of Rochford. was first with Louise Bonne of Jersey. Mr. Goldsmid was first with a fine dish of Marie Louise, and Mr. Pluck had the best dish of Glou Morceau; his specimens of Duchesse d'Angoulême, too, were remarkable both in size and colour. This fine variety of Pear was shown by no fewer than twenty-six growers, many of whom had remarkable fruit. Mr. Pluck had the best examples of Conseiller de la Cour, and the best Van Mons Léon le Clerc came from Mr. W. Fowler, of Winchfield, who had very fine fruits. Eighteen dishes were staged. Fine specimens of Catillac came from Mr. J. Pluck and Mr. Lane, both Jersey growers, and Mr. Thomas had the finest Beurré Clairgeau. The heaviest fruit (Uvedale's St. Germain) came from Mr. Thomas, six specimens of which weighed 14 lbs. 5 oz. Mr. J. Pluck had six fruits weighing 12 lbs. 12 oz. Mr. T. Brehaut, Richmond House, Guernsey, had a splendid basket of fruit, the weight of which was not given; to these a first prize was awarded, Mr. Pluck being second with very fine samples.

Apples.—Of these some splendid home-grown fruits were shown; equal, indeed, and, in some cases, superior to those of the Jersey growers. In the class for twenty-four Apples, Mr. S. Ford, Leonardslee, Horsham, was first with a very choice collection of handsome fruit, among which we observed Scarlet Pearmain, Braddick's Nonpareil, Ribston, Pitmaston Nonpareil, Allman's Pippin, Cockle, Adam's Pearmain, Golden Reinette, and others. Mr. J. Pluck, a Jersey grower, was second with excellent samples, which, however, were deficient in colour. Among these we noticed Reinette Dorée, R. Gris, Boston Russet, Old Pearmain, Hertfordshire Pearmain, Flower of Kent, and other fine sorts. In the class for eighteen culinary varieties, Mr. T. Ford was first with very handsome fruit of Beauty of Kent, Mère de Ménage, Alexander, Warner's King, Blenheim, Minier's Dumpling, Ackland Vale, Hollandbury, Winter Nonesuch, Winter Codlin, Red Streak, Reinette du Canada, Wadhurst Pippin, and others. Mr. Leigh, of Barham Court, was second with excellent fruit of White Calville, Reinette du Canada, and its ally, Reinette Desse Tardive, Alexander, Belle Dubois, Bedfordshire Foundling, Linnæus Pippin, Tower of Glamis, Blenheim, Reinette d'Espagne, and other equally fine varieties. In the class for six kitchen Apples Mr. Ford, Ampthill, Berks, was first with Blenheim Orange, Gloria Mundi, Bedfordshire Foundling. New Hawthornden, Beauty of Kent, and Alfriston, all of fine quality, Mr. Leith, of The Priory, Prittlewell, was second with handsome dishes of Hollandbury Pippin, Mère de Ménage, and Blenheim Orange. In the classes for particular varieties there was much competition and some very fine fruit was staged. Reinette du Canada was represented by some fine dishes, the best coming from Mr. Pluck, but those from Mr. Leigh, of Barham Court, were equally large, though scarcely so well coloured. The highly coloured Mère de Ménage was represented by half-a-dozen splendid dishes, Mr. Ross having the finest fruit; Mr. Walker, of Thame, being second. Blenheim Pippin was represented by thirty-two dishes of splendid fruit, Mr. G. Brush, gardener to Lady Hume Campbell, being first; Mr. R. Webb also staged very handsome fruit of this variety. Emperor Alexander, one of the most showy of all Apples, was contributed by twenty-two growers, Mr. Leigh again being first with wonderfully fine fruit. A dish of this variety, staged by Mr. Hudson, of Clapham Common, had evidently been protected by a net, which had given to the fruit a distinct mottled appearance. Alfriston, an excellent culinary Apple, came from ten growers, Mr. J. Pluck being first with fine specimens, and Mrs. Thomas second. Dumelow's Seedling, or Wellington, was staged by twenty-one growers, Mr. Murrell having very handsome fruit of it, to which a first award was made. In the class for the six heaviest Apples, Mr. Pluck was first with Alfriston weghing, 7 lbs. 2 ozs., Mr. Leigh, of Barham Court, had six Belle du Bois, weighing 7 lbs. 8 ozs., and Mr. Gardiner, of Stratford-on-Avon, had the same variety, which weighed 5 lbs. 12 ozs. In the class for six dessert Apples, Mr. Skinner, of Maidstone, was first with very fine samples of Cox's Orange Pippin, Golden Knob (very fine), Ribston, King William (a flat-shaped fruit), Court Pendu Plat (the highest coloured Apple in the show), and Warwickshire Pippin. Many exhibitors competed in this class. In the class for three varieties of dessert Apples, Mr. Jones, of Winchfield, was first with Allman's Pippin, Ribston, and King of the Pippins. Perhaps the most remarkable dish of Apples staged was one of King of the Pippins, from Mr. Leigh, of Barham Court. These were not only large but remarkably rich in colour. Court Pendu Plat came from nineteen growers, all of whom had very fine fruit, among which there was much variety, not only in eye and shape but also in colour. Mr. R. Webb was first with large and highly-coloured examples. Ribston Pippin, one of the best of all dessert Apples, was represented by dishes from thirty-five growers, and here also great variety among the fruits shown was noticeable, a circumstance doubtless due to different soils and climate. Mr. Coleman, of Eastnor, was first, and Mr. Ford second, with highly-coloured and handsome fruit. Of Cockle Pippin, which was staged by fifteen growers, Mr. Smith, of Romford, had the best specimens. Margil came from thirteen growers, Mr. W. Fowle having the best fruit. Mr. Webb, of Calcot, also had very brightly-coloured fruit in this class. Of Golden Pippin fifteen dishes were shown, the best of which came from Mr. Farrer, of Enfield. Fruits of Cox's Orange Pippin came from thirty-two growers, and were, in many cases, fine samples, large, and highly-coloured. In this class Mr. Friend, of Northdown, Margate, was first. Mr. Gilbert, of Burghley, showed a seedling Apple, somewhat resembling King of the Pippins, but larger, named the Burghley Apple. Mr. E. Matthews, Beddington, near Croydon, sent a seedling Apple, evidently a culinary variety, named Sunset, and Messrs. Ewing & Co., of Norwich, furnished large and fine examples of their new culinary Apple Lady Henniker.

Miscellaneous Plants.—Among these we noticed a fine dish of St. Martin's Quetsche Plum, and two fine dishes of home-grown Oranges from Mr. T. Ford, Leonardslee, Horsham. Mr. Bridgeman, Thames Bank, Great Marlow, sent three dishes of Plums, consisting of Imperatrice and Perdrigon, both purple varieties, and Coe's Golden Drop, all in excellent preservation. Mr. Record, Vinters Park, Maidstone, sent a fine basket of outdoor Grapes, which looked like Muscadines, in excellent condition, and dishes of Quinces, Medlars, and Salwey Peaches, came from different exhibitors. Mr. J. Richardson, gardener to J. S. Howard, Esq., sent two ripe fruits of the common Papaw (Carica Papaya). Mr. Chas. Turner sent a box of Cox's Orange Pippin Apples, and two dishes of Pears.

Vegetables.—Mr. C. Lidgard, Hammersmith, was first with three fine sticks of Wright's White Celery, Mr. Osman being second with the same variety; an equal second prize being awarded to Mr. Record, Vinters Park, Maidstone, who had Williams's Matchless Red. In the class for twenty dishes of Potatoes Mr. R. Dean was first with a good collection, in which were most of the best known modern kinds. The same exhibitor was also first in the class for ten dishes, his tubers of Carter's Excelsior being especially fine. Messrs. Walker, of Thame, Oxon, were first with twelve varieties of Onions, the variety being Walker's Improved Exhibition Onion, a kind nearly 6 inches in diameter and very clean skinned.

Messrs. Carter's Prizes for Vegetables.—The first prize for eighteen varieties was awarded to Mr. Osman, of the S. Metropolitan Schools, Sutton, who had excellent Salsify, Broccoli, Onions, Kale, Savoys, Champion Runner Beans, Snowflake Potatoes, Beet, Turnips, &c., all very good in quality. To Mr. F. Miller, gardener to J. F. Friend, Esq., Margate, was awarded the first prize for ten varieties of Potatoes, consisting of very fine tubers of Ashtop Fluke, Jackson's Improved, Snowflake, Red-skin Flour-ball, Bread-fruit, Model, and others. Mr. D. Lumsden was second with well-grown tubers of Rector of Woodstock, Main Crop, Extra Early Vermont, Beauty, Snowflake, and others.

Messrs. Sutton's Prizes for Vegetables.—For a collection of twelve varieties of Potatoes, Mr. P. McKinley, of Beckenham, was first with Yorkshire Hero, Red Emperor, Excelsior, Bountiful, Model, Rector of Woodstock, Salmon Kidney, and others. Mr. D. Lumsden was also second with excellent dishes of clean well-grown tubers. In the class for twelve bulbs of Sutton's Improved Reading Onion Mr. G. Neal, of Farringdon, was first with very fine examples of this variety. In the class for Sutton's King of the Cauliflowers Mr. Osman was deservedly first with close-headed examples, the colour of which was well-nigh perfect. Four other exhibitors likewise staged excellent examples.

Messrs. Hooper's Potato Prizes.—These prizes were awarded to growers who succeeded in obtaining the greatest weight of produce from one pound of seed of the following kinds of American Potatoes, trustworthy agents being appointed in the several localities to overlook the planting and digging up of the crop:—Eureka—1st, Mr. J. Pink, gardener to Lord Sondes, Lees Court, Faversham, 647 lbs.; 2nd, Mr. J. S. Bellis, gardener to Major Thoyts, Sulhamstead, Reading, 477 lbs.; 3rd. Messrs. Cocks Bros., Spalding, 461 lbs.; 4th, Mr. P. Robertson, The Gardens, Harbrigge, Jedburgh, 421 lbs.; 5th, Mr. F. Ford, gardener to W. M. Davenport, Esq., M.P., Capesthorne, Chelford, 384 lbs.; 6th, Mr. J. Down, The Gardens, Ashdown Park, Forest Row, 348 lbs. Snowflake—1st, Mr. J. Pink, Lees Court, 372½ lbs.; 2nd, Mr. J. S. Bellis, Sulhamstead, 346½ lbs.; 3rd, Mr. C. Ross, gardener to C. Eyre, Esq., Walford Park, Newbury, 296 lbs.; 4th, Messrs. Cocks, 290 lbs.; 5th, Mr. J. Down, The Gardens, Ashdown Park, Forest Row, 265 lbs.; 6th, Mr. P. Robertson, Jedburgh, 260½ lbs.

Miscellaneous Subjects.—Messrs. Veitch and Sons sent a collection of twelve varieties of Onions, and Mr. Gilbert, of Burghley, furnished examples of an improved Brussels Sprout. Mr. Davidson, gardener to Mrs. Marson, Highfield, Winchfield, contributed a curious long-stalked round-berried Tomato, the result of a cross between the Red Currant Tomato and Hathaway's Excelsior. It is called the Grape Tomato, and is certainly most elegant in form, and evidently very prolific. Messrs. Carter & Co., Holborn, sent a fine assortment of Potatoes, of excellent quality, together with a very interesting and complete collection of Kales, Cabbages, and Coleworts, and one of the best collections of Onions we have ever seen exhibited. Mr. Amies staged an interesting group of esculents and cereals, resulting from the use of his patent chemical manures, to the value of which several of our correspondents have borne testimony. Mr. Parsons, of Brockley Road, New Cross, sent some fine cobs of home-grown Maize. Mr. J. Monro, Potter's Bar, sent an excellent basket of his Duke of Edinburgh Cucumber, and Mr. Benning also sent a well-grown brace of an un-named variety. Mr. Ormson showed his upright Cornish boiler and patent arch hot-water stove—a stove encased in erect tubes, through which water can circulate freely, and thus diffuse a genial heat.

Road-side Fruit Trees.—The roads in some parts of Germany are lined during the entire distance with rows of Poplars, or of Apple trees, the branches of which latter bend beneath the weight of the fruit. A fine of 3s. is the penalty for plucking the fruit, consequently it is permitted to ripen, and the owners or the community reap the benefit of their foresight in making shade trees at once beautiful and profitable.

Boots for Wet and Mud.—I have stood in mud and water, 2 or 3 inches deep, for ten hours a day for a week, without feeling any dampness or having any difficulty in getting my boots on or off. If you would be equally successful, before wearing your boots give the bottoms a good coating of tallow and tar and dry it in; then oil the uppers with castor oil—about one table-spoonful will be sufficient. The effect of castor oil, is to soften the leather, while it fills the pores, and prevents the water from entering.—F.

NEW PLANTS, &c.

Pitcairnia staminea.—This pretty Bromeliaceous plant was first introduced to English gardens more than fifty years ago by Sir Thomas Hardy, who sent it to Lady Campbell. M. Roezl again discovered it in New Granada, in 1872, and sent ripe seeds to M. Linden, from which plants have been raised. The plant is of slender habit, the bright green, grass-like leaves drooping elegantly on all sides. The flowers, which have revolute segments—from which the stamens protrude in such a manner as to cause the flowers to assume a Fuchsia-like aspect,—are of a bright scarlet colour, and are produced on slender erect spikes. It is a stove or warm greenhouse plant of extremely easy culture, and well deserves a place wherever elegant Bromeliads are grown. A good coloured figure will be found at t. ccv. of "L'Illustration Horticole."

Dicksonia chrysotricha.—One of the handsomest of all tree Ferns, a native of Java, where it has been found on the mountains up to an altitude of 10,750 feet. It is impossible to confound this species with any other. The golden-brown fur which clothes the stipes of the fronds is alone sufficient to distinguish it. The shape of the plant is very elegant, the finely cut, plumose fronds arching gracefully on all sides, the lower ones assuming a semi-weeping habit, while in colour they are of a bright green. A well-coloured figure is seen at plate ccvi. of "L'Illustration Horticole."

Dendrobium thyrsiflorum.—This plant is well figured at t. ccvii. of "L'Illustration Horticole," and may be considered as a fine variety of the well-known D. densiflorum, from which it is easily distinguished by its snow-white sepals and petals. The lip is of a bright orange colour, and densely fringed around its margins. It received a first-class certificate when exhibited before the floral committee of the Royal Horticultural Society, in 1870, by Messrs. Veitch & Sons, who introduced the plant to our gardens from India. It is one of the most attractive of all Indian Dendrobes; although, unfortunately, its gorgeous flowers are rather fugacious, only lasting three or four days in beauty; nevertheless, it is well worth culture.

Primula Parryi.—A very handsome Primrose, bearing ten or twelve large bright purple yellow-eyed flowers on a scape 10 or 12 inches in height. Its leaves are oblong and finely serrate. The plant is a native of the Rocky Mountains, where it is found on the borders of Alpine streams near the snow line. It was first discovered in 1860 in the Colorado district, but has since been discovered in the East Humboldt Range, Clover Mountains, Gray's Peak, and Mount Lincoln. It has been introduced by Messrs. Backhouse. "Botanical Magazine," t. 6,185.

Spanish Moss.—A catalogue of utilised "waste products," lately published by the Government, contains seventy-nine pages, and records some interesting facts of the Spanish Moss, or Old Man's Beard, Tillandsia usneoides, an epiphytal plant growing on trees in the southern United States. It appears some 10,000 bales are annually shipped from New Orleans. It is used for cushions and other upholstery purposes, as well as for packing and for paper-making.

Knight's Monarch Pear.—This is a grand Pear (see p. 296 and 309), and, where it can be grown, is inferior to none in its season. I shall not forget seeing it once on a south wall in Stackpole Court, Pembrokeshire, where premature ripeness and dropping from the tree seem to be unknown. A tree on an east wall here cast its fruit badly last year; but I considered that this was to be attributed to the unusually dry summer, and to the arid situation in which it was growing. This conjecture is warranted by the same tree producing this year a fine crop of large clean fruit, without showing any tendency to drop. Every variety has its peculiarity; and perhaps the Monarch likes moisture and high culture. If so, it is at least worth the trouble that may thus be expended on it. A young standard here also produces a heavy crop, though the fruit was rather small in size; but none dropped from the trees. I should say the fruit on wall trees last year was very small, even when gathered. I believe when they can be grown to a good size, they never drop.—J. TAYLOR, *Hardwicke Grange.*

LAW.

WILLIAMS v. LESLIE, M.P.—This was an action to recover the sum of £428 for goods supplied. The defendant paid £328 into Court, and as to the rest of the plaintiff's claim pleaded never indebted. The plaintiff, Mr. B. S. Williams, of Holloway, and the defendant, the Member of Parliament for Monoghan. The plaintiff's claim was for goods furnished by him to the defendant during the years 1873 and 1874, on the order of person named Hood, who formerly acted as the defendant's gardener. On behalf of the plaintiff, it was shown that Hood had been in the habit of ordering similar goods from the plaintiff for the defendant, who had discharged the accounts without demur. The plaintiff, in the course of his cross-examination, admitted that there was a practice prevalent among nurserymen of making presents to the head gardeners of their customers proportionate to the amount of orders given. His practice was to give 5 per cent. on the amount of the payments actually made, and he had made presents to that extent to Hood. The defence was, that the defendant, having discovered, in 1873, that Hood had been ordering goods from various nurserymen to an extravagant amount, had directed him in future not to exceed an expenditure of £600 per annum on the garden. Notwithstanding this direction, on the part of his employer, Hood continued to order large quantities of flowers, until, in 1875, bills were sent in to the defendant to the amount of £3,000 for goods supplied on Hood's orders. It appeared that in May, 1874, Hood wrote a letter to the plaintiff informing him that he had exceeded his allowance, and requested that a debt of £119, which he had incurred for flowers supplied to the defendant on his order, should be allowed to stand over on that ground. Notwithstanding this intimation that the authority of Hood to pledge the credit of his employer was limited, the plaintiff had supplied other flowers on his order amounting to about £250 in the course of the last three months of 1874. Under these circumstances it was contended that the plaintiff had supplied the goods at his own risk, and, as Hood had largely exceeded the amount of his allowance, the plaintiff was not entitled to recover from the defendant the value of the goods he had so supplied on the order of Hood. His Lordship, in summing up, told the jury that if the plaintiff had supplied the goods with a full knowledge that the authority of Hood to pledge his master's credit was limited, he must be taken to have supplied them at his own risk, unless they were of opinion that the defendant had knowingly accepted the flowers after he became aware that their price had not been paid out of the £600 per annum he allowed Hood for the expenses of his garden. The jury retired, and on returning found a verdict for the plaintiff for £79, being the amount claimed less the 5 per cent. he would have paid Hood on the transaction had matters gone on as usual.

Cracked and Blackened Pears.—These are very prevalent this year. The blackened appearance is due to a Fungus (Helminthosporium pyrorum), which is common in ordinary seasons on the leaves, but in some years it also attacks the fruit.—A. M.

New Seedling Peach.—M. Lèpere, of Montreuil-sous-Bois, has raised a new seedling Peach, which the French Horticultural Society consider to be a fruit well worth propagating. It is deep in colour, large in size, and excellent in flavour.

Pear Lebrun.—M. A. Rivière, of the Luxembourg Gardens, lately showed to the Central French Horticultural Society six handsome specimens of this Pear, which contains few, if any, pips. This variety has been grown for some years in the neighbourhood of Moulins, where it is found to be both vigorous and productive.

Wild Edible Fruits.—Amongst the list of useful vegetable products may we not include Hips and Haws? Surely some of your readers can give us a good receipt for converting into jam these fruits of the Dog Rose and the Hawthorn, which are both in such profusion this autumn. With sundry doubts, I lately tasted some Carrot jam, and was obliged to admit it to be "not at all bad."—W. T. T.

Tree Peonies.—To "R. D.'s" list of these (see p. 388) permit me to add Souvenir de Gand and Gloria Belgarum, which are the two largest flowered Peonies known. Their flowers measure from 8 to 10 inches across, and are most brilliantly coloured—one salmon-red, shading off into a rose, the other into scarlet. Both were raised at Ghent, and are still scarce.—MAX LEICHTLIN, *Baden-Baden.*

Cool Orchids.—It may interest some to know what can be done with certain kinds of Orchids under cool treatment. We have had this year Oncidium zebrinum with a branching spike 15 feet long, and bearing 299 blooms, and on Odontoglossum Hallii there is at present a branching spike bearing thirty-nine blooms. Has anyone had a greater number of blooms on a single spike of these varieties?—E. CULLEY, *Ferniehurst, Shipley, near Leeds.*

Cotoneaster Simmondsii.—This forms an ornamental object for the foregrounds of shrubberies and wilderness walks; its richly-coloured scarlet berries are produced in abundance, the growth being erect, and the berries slightly pendulous. These characteristics, added to the changing hues of the foliage at this season, render it an agreeable and striking contrast to the prostrate forms of this useful class of ornamental plants.—W. COX.

Groom's Hybrid Lilies.—In reference to these, respecting which Mr. Elwes enquires, I believe some information may be gleaned from the volumes of the "Gardeners' Magazine," or in Paxton's "Magazine of Botany," most probably in the advertising columns. I have a distinct recollection of having seen an advertisement of Groom's, but cannot give volume or date. There is no doubt of the fact that the varieties in question are hybrids raised by Groom.—W. THOMPSON, *Ipswich.*

Cutting Down Artichokes in Summer.—Respecting my Globe Artichokes, which were accidentally mowed down last summer (see p. 137), I have now to report that the mowing down has proved quite an advantage, inasmuch as we have had a beautiful second crop, which lasted down to the second week in October. Next year I shall only cut down the stalks to the ground, and let the leaves alone. At present they are quite luxuriant and green, while those that were left in the usual way are withered. We shall see how the winter will suit them.—A. MACFARLANE, *Great Tew, Enstone.*

Ampelopsis Veitchii.—In the same manner as Mr. Whittaker (see p. 382), I have found this to be a very valuable climber, both for covering walls in the shade and in exposed situations, and the rapidity of its growth is surprising. Its leaves, too, are most useful for garnishing fruits and for table decoration during the autumn months. No plant is more easily propagated. We put in some hundreds of cuttings of it two years ago as one would Ivy. They all rooted, and were planted thickly on old walls and other places. They also make beautiful coverings for old stumps of trees and for rock-work.—M. TEMPLE.

No. 209.] SATURDAY, NOV. 20, 1875. [Vol. VIII.

> "This is an art
> Which does mend nature: change it rather: but
> THE ART ITSELF IS NATURE."—*Shakespeare.*

FRUIT TREES ON THE RED LANDS.

In many parts of the midland counties there is a rocky sub-soil, generally known by the name of kale; and when, as often happens, the surface of the staple soil is only 9 or 10 inches above it, with most fruit trees (the Vine, perhaps, excepted) there is little hope of success, unless special means are provided to increase the depth of the border and accumulate a sufficient supply of good soil for the nourishment and support of the trees. This seems to be their chief requirement, and, if attended to, will enable them to flourish many years after some of their roots have penetrated the kaly sub-soil. From the latter the trees that are reputed to suffer most are Apples, and yet, in a soil of this description, I have a Ribston Pippin, a Northern Greening, a Dumelow's Seedling, a Wyken Pippin, and others that I planted more than thirty years ago; and, although some are cankered slightly, they usually yield fair crops in seasons that are not unusually dry. On coming to this place I noticed, in a better situation, and where the soil is rather deeper, an old tree with a stem covered with Moss and Lichen. Having cleaned the stem and cut back the branches, I grafted those on the north side with scions of the Blenheim Orange Pippin, and on the south side with some from an excellent kitchen Apple of local origin, called by some the Hedge Apple (from the situation in which the original tree was found), by others the Hotchkin Pippin, after the man who discovered it, and raised from it the first trees that were sent out—a most desirable Apple, for it never fails to produce its large deep yellow fruit, while the Blenheim has lately taken to bearing only in alternate years. The success that has attended this tree I attribute in some measure to the method I have practised of supplying it with soil. The tree stands on Grass, and I have from time to time removed the turf, and, before replacing it, have covered the surface of the ground with a couple of barrow-loads of rich soil. But, what I think has done most good, has been the digging of a trench 2 feet deep, all round the tree, 8 feet from the stem, and filling it half full of fresh soil, finishing up with the best of what was taken out, passed through a sieve to separate the kale stones, which abound in the lower stratum some 6 or 8 inches deep. This operation was repeated, after an interval of several years, just outside the former excavation, but neither was completed in one year, half only being done at one time. This tree continues healthy, although for upwards of half a century its roots must have invaded the kale; and no doubt the root-pruning that it has twice received has tended somewhat to augment productiveness. Besides the sorts already named, I have found the following to bear well in favourable seasons:—Court Pendu Plat, Cox's Orange, Cox's Pomona, Cellini, Court of Wick, Irish Peach Apple, Reinette du Canada, Bedfordshire Foundling, and Norfolk Bearer. All of these have done fairly, and some very well. The Hawthornden and Norfolk Beefing were among those that the red soil did not seem to favour. I had to remove a Royal Russet also, from its having become hopelessly cankered. Of other Apple trees growing here I am unable to report; most of them are as yet too young to judge of their fitness for our soil and climate. Pears on the Pear stock, although they do well for a few years in this soil, fail sooner than Apples, owing to the greater downward tendency of their roots. A Gansel's Bergamot on the Pear stock, about forty years old, growing in deeper soil on an east wall, produces remarkably fine specimens of the sort, though the advance of its roots downward has never been arrested by concrete or other means, and trained on a west wall in the form of a five-tined fork, and in a border not more than 15 inches deep, are growing Beurré Diel, Beurré d'Amanlis, Glou Morçeau, Louise Bonne of Jersey, Soldat d'Esperen, Doyenné Boussoch, Passe Colmar, Joséphine de Malines, and Beurré d'Aremberg. They are young trees, all on Quince roots, without any underground defence against the kale, and they continue to bear plentifully, although, to judge by the early ripening sorts, their quality is not so good this year as it might have been had the season been more favourable. A standard tree of Williams's Bon Chrétien that for a few years has borne heavy crops, is threatening to succumb to the kale, after being about twenty years in its present position; while a Joséphine de Malines, of the same age, close to it, looks perfectly healthy; they are both on Pear roots. A Winter Nelis, grafted a few years ago on an old tree on Pear roots, and without underground protection, is now producing an abundance of Pears. They have, within the last two months, increased greatly in size, and, I fear, will not ripen, although the aspect of the tree is due south. Marie Louise, grafted on the Pear, soon suffers if the roots are allowed to penetrate the kale. Of this variety, I have espaliers that bear fairly, but they are concreted beneath. The same result may be expected from the Glou Morçeau when grafted on the Pear. It is a long time coming into a bearing state, and for a few years will bear abundantly. I had to remove one last year whose stem measured nearly 26 inches round at 3 feet from the ground. It had not been planted more than twenty-six years, yet canker had for some time invaded the branches. The Pears they bore were neither so large nor so numerous as they had been, and most of them were cracked and worthless. The stewing Pears, Catillac and Martin Sec, do well. The latter is a useful little Pear at this season, and here has never failed to yield an abundant crop. Young trees of Bergamotte d'Esperen, Beurré de l'Assomption, Doyenné du Comice, Huyshe's Prince of Wales, Marie Louise d'Uccle, and Gracioli of Jersey, have not yet borne fruit, but are looking healthy, and will probably succeed in this soil. Most of these are grafted on the Quince stock. A Chaumontel grown as an espalier in a well protected sunny part of the kitchen garden, has never ripened its fruit, but for a long time branches of the Fondante d'Automne that have been grafted on it have furnished plentifully good samples of that justly esteemed variety. The Jargonelle I have had on Hawthorn roots as well as on those of the Pear; neither did well, but I attribute that in a great measure to the unfavourable character of their respective localities, and not to the species itself. The red soil seems to be well adapted to the growing of Plums, because the tendency of their roots is in a horizontal direction. Those that attain the largest size as standards, and bear well, are Victoria, Chapman's Prince of Wales, Black Diamond, and Guthrie's Late Greengage. The next in size, and equal to the others in bearing, are Greengage, Purple Gage, Rivers' Early Favourite, and his Early Prolific (the latter should find a place in every orchard), Orleans, Deniston's Superb, and Winesour. Among small Plums, I will mention, along with the common and Prune Damsons, Woolston's Black Gage, as doing well on the red soil; Angelina Burdett is a delicious Plum, but has yielded badly on the only bearing specimen I possess; and I have not yet found either the Autumn Compôte or the old red Magnum Bonum to produce any weight of fruit. The latter we found in Essex to yield most abundant crops. The fruit of the Washington is large and handsome, but I have found the tree a most uncertain and capricious bearer; Jefferson, as a standard, does better, and would, I doubt not, produce larger fruits if, like Coe's Golden Drop, it occupied a place on a west wall. Of Cherries I have but five sorts — Elton, Bigarreau, and Black Tartarian as standards, Morello and Mayduke on walls. They yield plenty of Cherries, but require a good deal of rain to bring them to their full size. Of Peaches and Apricots on the red soil the usual verdict is that they will not thrive for any length of time, but I have reason to think that they suffer more from the want of a sufficient amount of soil to grow in than from the mischief caused by the kale bottom. A floor of concrete, however, about 2 inches thick, made with cinders and quicklime, will keep the roots effectually from penetrating the sub-soil; and, with such a provision, Peach and Nectarine trees, in a border not less than 2 feet deep, may be expected to do well. One of your correspondents has lately remarked upon the mischief done to trees by accumulating soil round their stems. I am able to show that on the red soil a thick layer of earth is beneficial when applied with judgment; and that in some instances it is greatly needed to restore fertility. About twenty-five years ago I planted a Medlar (on Hawthorn roots) in a spot where some of the top soil had been removed, and, consequently, there was too little depth of soil to allow the tree to thrive for any length of time. Nevertheless, for a few years after it began to yield, the fruit was fine and fair in quantity. The place where it stood was partially shaded from the sun, and, being lower than the surrounding ground, the rains kept it longer moist than it otherwise would have been. The tree always looked healthy, but, as time went on, the Medlars began to diminish in number; when, having on one occasion a great deal of spare mould of good quality, I laid it on about 4 or 5 inches deep. The result was everything that could be desired. In the second year after it had received this thick top-dressing the produce was astonishing, and the size and quality of the fruit—which had always been good—were even better than they had been before. A tree is often planted too deeply, and, in that case, an additional quantity of soil round the stem would only increase the mischief which the ignorance of the planter had occasioned; but when the staple soil is shallow, a tree cannot well be planted too high; and when this point is attended to, a good thick coat of earth laid on the top will always be of advantage. Near this Medlar tree, and coming in for a share of the added soil, stands a Portugal Quince (much the best sort of Quince to grow here). This tree is the picture of health, and rarely fails to produce a good crop. And here I would remark that, although a tree doing well shows that it takes no harm from the soil in which it grows, the converse of the rule does not necessarily apply. A tree may be unhealthy, and yet it may not be the soil that is in fault; and an amateur who only possesses one specimen of the particular sort, if it should not answer his expectations, would be wrong to conclude that a second trial of the same species would be followed by an equally bad result. On a border lately deepened and concreted beneath, in which there is now growing a Cellini Apple, bearing crops of fine fruit, there once was planted a Boston Russet. This tree producing much canker and little fruit, received a new head from grafts of the Blenheim Orange with no better result. Yet within a few yards of the spot, and unprotected from beneath is a nurseling of that same sort, the Blenheim, with large green leaves and a clean healthy stem 6 feet in height; and the branches on the north side of the old tree already mentioned show that there is nothing in the red soil that will hinder the Blenheim Orange from growing in it. Much probably depends on the sort of stock selected, on which an Apple tree is grafted, and perhaps more still on the individual selected, whether that individual be a Paradise, a Crab, or one raised from the pip of a cultivated kind; and it is certainly important, to provide that no disease be introduced with the scion itself, which should always be taken from a tree in perfect health. But considering that light soils in general are not favourable to the growth of Apple trees, and that our sub-soil contains matter that sooner or later has a bad effect on them, it is important to ascertain, if we can, what are the sorts that are likely to give us the largest crops. "There are Apples and Apples," Mr. Rivers would tell us, in whose later catalogues, Cellini and Waltham Abbey Seedling have ceased to fill an honourable place. But to ordinary people "Apples are Apples," and those who grow fruit on the red soil would pause before they uprooted bearing specimens of the two sorts just named to make way for newer and by them untried varieties. My one and only specimen of the Waltham Abbey Seedling stands on slightly deepened ground (deepened only by the addition of soil on the surface before the tree was planted) without any defence against the kale; and for the last eight or nine years has regularly produced a full crop of its large and handsome fruit. In every part of the tree the Apples are to be found; even in the very centre, where you would not expect to meet with them. The history of this valuable fruit is given in Vol. VI. of The Garden, page 493. While on the subject of trees especially favoured by this soil, I will mention Cox's Pomona, a young specimen of which sort stands in a well-prepared and deepened border, in company with some Pearmains and other sorts whose performances have not been satisfactory, although they are free from canker. This tree is usually loaded with fruit, when its bloom-buds escape the ravages of the bullfinch. Never tolerate a nest of that orchard-scourge near your Pomona, if you would have the goddess smile upon you. In cultivating the red soil, what we have most to dread is drought. Its evil effects are seen in the diminution of the size of fruits of all kinds, and especially of small fruits, such as Raspberries, and in causing Lichen and Moss to form on Gooseberry and Currant bushes. There is, however, one peculiarity that I have often noticed in this soil—Carrots and other root crops, in dry seasons, for a time seem to make but little progress; but, when they have once formed their own shade, their advance is rapid. This year, however, there has been too much rain even for our soil, and not enough sun to mature the fruit; and, in some few instances, I have noticed that even in size, as well as in flavour, the fruit was deficient. A Gansel's Bergamot, however, which I have just weighed, and found to be 12 ozs. in weight—and I am not sure that there are not some even heavier—shows that the excess of moisture has tended to increase the size; but, in this instance, at least, I do not find that it has materially injured the flavour. As regards the latter, Plums seem to have suffered most; and Guthrie's Late Greengage produced very large but worthless specimens of that superb variety. Thirty-six years ago, I was told it was useless to plant fruit trees at my end of the village, but I resolved to try, and was not disappointed with the result; and if any reader of The Garden has lately come to live in one of the midland counties, in a place where he will have to encounter the difficulties of dealing with the red soil, I hope what I have written may be of some little service to him. Especially would I recommend surface planting where it would be safe to practise it. A good way of doing that may be found in Vol. IV. of The Garden, page 462; and where there is plenty of room, there should always be growing in nursery rows young plants of favourite and newer sorts to take the place of any that may have outlived their producing powers, a misfortune which must be expected to happen occasionally to cultivators of the red soil. No opportunity should be lost of accumulating earth, lime rubbish—indeed, rubbish of all sorts that will in any way encourage vegetation—leaves, Nettles, soot, vegetable refuse of every kind, turf from the sides of roads, and weeds heaped up—not burnt, unless they contain Twich or Bindweed. All should be carefully collected and saved for top-dressing, and every effort made to deepen the soil. Stable manure should be freely used on the surface, and heavy mulchings in dry periods of the spring and summer months will always be of great benefit to the trees. When fruit borders are prepared and the bottoms paved or concreted, the kaly sub-soil which has been thrown one side should be sifted, the kale stones carried away, and what passes through the sieve left to form the layer of earth. But the excavation should not be deep, and the border should acquire its depth as much as possible by raising its level with additional mould. It is quite possible by such means to grow good fruit and plenty of it on the red land of the midland counties. B. S.

Pelargonium Happy Thought.—This is one of the prettiest of all the variegated kinds, and is quite distinct from all others, the leaf having a distinct creamy-yellow centre and a green margin. It appears to be a cross between the old Pelargonium inquinans reticulatum, to which it sometimes reverts, and some white variegated variety; but it would be interesting to learn from the raiser whether this is so or not. Apart from its distinct leafage the flowers are of good form, and of the brightest magenta suffused with lilac. Small cuttings of it, scarcely rooted, are now flowering freely, showing it to be a useful winter blooming plant.—J. B.

Fallen Leaves Not a Nuisance.—Gardeners, to whom falling leaves are a nuisance, naturally desire a few sharp white frosts at the end of October to facilitate the fall of the leaves, and also to induce them to fall quietly beneath the trees on which they grew. They are then easily gathered up, and much labour is saved. But, why should a carpet of leaves be considered a nuisance? Is there not a danger that we may carry our notions of garden cleanliness too far? Paths may certainly be swept clean, because they suffer if not so kept, but leaves are good for the soil and Grass, and cover up and shelter the tender crowns of many useful plants. The rigid notions of cleanliness that prevail at this season of the year might well be relaxed for a time, to admit some of the earth's produce being returned to it again.—A. D.

NOTES OF THE WEEK.

—— Newtown Pippins are, as yet, a high price in the market, over £2 a barrel wholesale. Some time ago this fruit was frequently sold at less than £1 per barrel; now the demand in the great provincial towns has caused quite a change; the Apples, instead of coming to London direct, are sent to agents in Liverpool, whence they are distributed over the kingdom at rates greatly more advantageous to the grower than was formerly the case.

—— One of the most useful and beautiful of golden-yellow flowering plants at present in flower is Cassia corymbosa, which, when planted out in a conservatory, flowers profusely during the autumn; it is very free-flowering, and keeps in beauty up to Christmas. Spikes of it, cut and put in large glass vases, look well without any intermixture, the foliage having an elegant appearance, and standing a week without flagging, which is a strong recommendation in the case of any cut flower at this season of the year.

—— We have occasionally furnished facts as to the question of the influence of forests on rain—all of which, when accurately recorded, tend to show the influence to be very slight at best. "Walker's Statistical Atlas" states that the "magnificent forests found from Minnesota to Maine have a rainfall precisely identical with that of the nearly treeless prairies which extend westward from Chicago."

—— At Mr. im Thurn's sale, the other day, a plant, in a tub, of the double-white Camellia, about 10 feet in height, and well set with flower-buds, fetched a little over £12, while others of the red and striped kinds fetched scarcely half that sum. Palms of the Chamærops humilis realised from 6 to 7 guineas each; Areca sapida, £11; and a finely-grown plant of Encephalartus villosus, 11 guineas. Others lots, of which there were in all 365, fetched from £3 to £5 apiece.

——M. Faucon, the author of autumnal submersion of Vineyards for six weeks or two months, as a perfect cure for the Phylloxera, and the only one up to the present found to be successful, has this season been rewarded by a yield of wine double that produced in ordinary years. His Vines are exempt from Phylloxera, while those of his neighbours, where the inundation scheme is not employed, are nearly destroyed.

—— M. Edouard Morren has published another edition of his "Correspondence Botanique," which is a list of the botanical gardens, professorial chairs, and botanical museums, &c., throughout the world. It is a most useful aid to botanical correspondence, and is prepared with much care.

—— A correspondent of the "Pacific Rural Press" says the Phylloxera has appeared in California, and is already doing serious damage. In some Vineyards large patches of Vines are dying or already dead.

—— Oncidium excavatum is a useful winter-flowering Orchid. It throws up long spikes at this season, and blooms profusely onwards till far on in the spring. It is a capital kind for nosegays, and those who are partial to a bright yellow and brown flower, will be pleased with it. It lasts a long time in water in a cut state.

—— The "New Orleans Picayune" states that "Bananas will be widely cultivated in the South in future. Acres of them have been planted in the worn-out cotton fields of some of the Gulf States, while in Florida this culture has become a thriving business. Here, in New Orleans, the trees grow readily without cultivation, and rapidly yield fruit."

—— Apples are now frequently sold in London shops as Ribstons, which are not true to name. The kind most commonly sold is one known as Deux ans, an English grown fruit; and the Margil is also occasionally sold for the Ribston.

—— We have to thank the Hon. and Rev. T. W. Boscawen, of Lamorran Rectory, Probus, for samples of that admirable Apple the Cornish Gillyflower, a fruit which is, perhaps, the richest and finest flavoured of any Apple grown. Finely flavoured and in all ways excellent kinds of Pears are becomming common throughout the country; but, really well-flavoured Apples, that will keep, are far too rare, and, therefore, such precious kinds as this should be more frequently planted. Mr. Boscawen says:—"Very little is known down here about the origin of the Gillyflower or July Flower (on account of its scent when cut, being like that of the Clove Carnation), except that it was found growing in a cottage garden near Truro, at the beginning of this century, and sent to the Royal Horticultural Society in the year 1811, by Sir Christopher Hawkins. I believe myself that it is a Seedling from an Apple much grown here, called the Spice Apple. I have found it easy to grow and fruit, both in Cornwall and elsewhere; all that it requires is an eastern aspect, and dry weather when in blossom. I have remarked often that when there is a cold east wind at the time of flowering there is sure to be a good crop of fruit."

EVIL EFFECTS OF "DRYING OFF" PLANTS.

There appears to be a wide-spread notion that plants of a deciduous or bulbous character do not require moisture after they have shed their foliage, but that is, I think, a mistake, for that serious injury often results from keeping such plants, when at rest, dry, there can be little doubt. The effects of drought are not, however, so immediately observable, as, when the foliage proclaims, by drooping, the lack of moisture at the root. In considering the effects of what is termed "drying off" on various subjects, I would divide them into two classes, viz., those with bulbous or fleshy roots, and those with fibrous ones. The latter are the first to suffer, owing to the fact that they have no store-house, so to speak, on which to fall back to maintain their vitality until a supply of moisture enables the roots to come to their aid. The effect of drought on Peaches, Vines, and such fruits as are cultivated under glass, either in inside borders or in pots, is that the buds usually either drop off or refuse to swell, a circumstance almost unknown in the case of the same subjects when fully exposed to the annual rainfall. In fact, what we call the season of rest, which commences with the fall of the leaf, does not always denote that the roots are dormant. On the contrary, we all allow that by planting fruit trees early, say in October, or immediately after the fall of the leaf, they become established before the soil wholly loses its summer's heat, and much more readily than in spring, when it is at a low temperature. I think that in the case of many deciduous trees and shrubs the roots are active for some time after the fall of the leaf—if, indeed, they are ever wholly at rest; therefore, I would advise all who value the health of their trees to see that they do not suffer from lack of moisture. In temperate regions, the season of rest for this class of tree is invariably accompanied by abundant moisture, both at the root and in the atmosphere; therefore, I conclude that much more injury is likely to result from lack than from excess of moisture. Many bright hopes of success in fruit culture are blighted at this season, although the cause is not always apparent. With bulbous and fleshy rooted plants, their peculiar formation enables them to resist the effects of drought for a lengthened period without entirely losing their vitality; but, nevertheless, the energy of the plant is, I think there can be no doubt, greatly lessened. If we compare the growth of our ordinary spring-flowering bulbs, that are, after blooming, lifted and stored on dry shelves with those left undisturbed in the soil, we shall not require further proof as to which system is best. The many beautiful Lilies now in cultivation are very impatient of the "drying-off process;" while the beautiful Belladonna Lily can only be had in perfection if left undisturbed for years. If, then, any class of plants is being benefited by being kept thoroughly dry when at rest, it must be such bulbous-rooted plants from the hottest regions as are usually grown in stove temperatures, such as Caladiums, Gesneras, &c.; yet it is conclusively proved that more are lost by "dry rot" than by excessive moisture. Cyclamens used at one time to be dried off periodically; but, thanks to a better knowledge of their culture, they are not now subjected to such a trying and weakening ordeal. The consequence is that finer plants are now raised the second year from seed than we used to have after several years' growth. James Groom.

Henham.

AGAVE CONSIDERANTI.

(VICTORIÆ REGINÆ.)

It would appear that the name Victoriæ Reginæ, given by Mr. Peacock to this Agave, is untenable. According to the "Revue Horticole," its history is as follows:—The Agave Consideranti is indigenous to the cold parts of New Mexico and Texas, where it is found near Monterey, a mountain lying to the right of the road between Monterey and Saltillo, at the altitude of Santa-Catherina. The first plant of A. Consideranti was brought over in 1872 by M. V. Considérant. This specimen, at that time the only one in Europe, was exhibited before the Central Horticultural Society of France, and was awarded a silver medal of the first class; but it perished during the winter from damp. On the 4th of October, 1874, M. Considérant received a dozen more of these plants, which, this time, were deposited in the Muséum. By permission of the introducer, offers to sell these specimens were made by M. Houllet, of the Muséum, to M. M. Linden (of Ghent), Pfersdorff (Paris-Batignolles), Guedeney (Vesinet), and Thibault and Kiteleer (Sceaux); but none of these nurserymen would buy them. Under these circumstances, M. L. de Smet, of Ghent, came to Paris, and agreed to purchase seven plants of it for 350 francs, with the full knowledge that the variety had already been named Agave Consideranti, and that the importer still retained five plants of it in his possession. Of these one was sold for 50 francs to M. Guedeney; another and a stronger one was given by the owner to the Muséum, where it is at the present time; whilst the other three plants still remain in the possession of M. Considérant. It will, therefore, be seen that Mr. Peacock, when he purchased what he supposed was the entire stock of this plant was in error, and that his specimen, exhibited before the Royal Horticultural Society on the 6th of October last, and named, with the permission of her Majesty, A. Victoriæ Reginæ, has no right whatsoever to the name. Upon the manner in which the error originated it is not for us to speculate; we leave the solution of the difficuly to those through whose hands the collection, or a portion of the collection, has passed, from M. Considérant himself to Mr. Croucher, who, as gardener to Mr. Peacock, purchased the plants from M. de Smet. It is sufficient for us to point out the mistake and to rectify it, as far as possible, by referring to the plant for the future under its undoubtedly correct name, Agave Consideranti.

ABIES (PICEA) ALCOCKIANA.

"G. S." (see p. 385) seems to be quite right in classing this Fir with the Abies rather than with the Piceas, according to the classification of English botanists, especially as he has had the opportunity of seeing how it bears its cones. My mistake has arisen from the fact that most Continental authorities just reverse the naming of these two genera. M. Van Houtte, for instance, who formerly placed Alcockiana under Abies, has, if I remember rightly, now removed it to Picea. Does it not seem rather anomalous to have to exclude from the so-called Silver Firs the most silvery Fir yet introduced? In regard to the colour of the young shoots, my experience certainly differs from that of "G. S.," as with me they are of a light, slightly powdery-looking green, and present a considerable contrast to the old leaves; this may, however, be due, partly at all events, to my misfortune in living only three or four miles from a smoky town; though, in any other way smoke seems to have very little effect upon it—far less, indeed, than upon the common Norway Spruce, which is of very little use in such a situation. I may here remark that many evergreens which soon show the effects of smoke, may be kept in tolerable health near towns if occasionally well washed and played upon by a strong jet of water. As this Fir starts rather early into growth, it is occasionally in this county (Yorkshire) a little nipped by late frosts; but not nearly to the same extent as P. cephalonica, and, no doubt, larger plants will not suffer at all in that way. I am glad to see that "G. S." allows it to be the handsomest of the Spruces. Of course tastes differ, and Firs vary in attractiveness at different stages of their growth; but at present, with amabilis, lasiocarpa, Pinsapo, and nobilis before me, I still maintain that Alcockiana is a formidable rival to any of them. It would be interesting to know what is the height of the largest specimen of it in Great Britain. Perhaps some of your correspondents may be able to answer this question.

G. W. B.

Late Scarlet Runners and French Beans.—The statement respecting these (given at page 379) has induced me to look into the matter, and I quite agree that late Beans are either much neglected or mismanaged. I only sow one crop, and that about the first week in May. The plants from this sowing are well supplied with water, and the Beans are gathered as they are wanted; but I make a point of clearing all off at least once a week, and, if any of them are too old for use, they are discarded, as, if only a few pods are left to grow on the plant for seed, they very much shorten the season of gathering—a circumstance too often overlooked in many gardens, and hence the cause of their being so soon over. I wholly attribute my success, as to later gatherings, to the regular clearings which I make. When there are signs of frost, I cover both Peas and Beans in bearing with hexagon netting, a most useful material for such purposes.—W. Divers, *Wierton House, Maidstone.*

Lettuce Banks.—The most remarkable thing now in our market gardens is the Lettuce banks planted up with some of the tenderer Cabbage kinds that stand the winter. In open places, especially where the soil is at all wet, it is usual to round up beds on which both Cabbage and Cos Lettuces are planted, as, in this way, less moisture is retained around the roots than is the case when they are planted in flat ground. Lettuce banks have a sharp incline, without special reference to aspect, the important point being to secure shelter. In order to obtain this the banks are thrown up under Apple trees, Currant bushes, &c., and in some cases small Laurels are planted closely along the tops of the ridges and in such a manner as to project over the bank. These Laurels afford good protection, as they retain their foliage all through the winter. Under such circumstances, a Lettuce crop is got off early, and the soil can be again partially levelled to furnish a crop of dwarf Beans, or other summer produce. The best market Lettuces appear to be the Paris White Cos, Bath Brown Cos, and Grand Admiral Cabbage; and in some cases the Leyden White Dutch Cabbage kind has also given great satisfaction. Of course a hardy constitution is of the first importance; but the bank plan of culture is advantageous to half-tender kinds, that are larger and more acceptable for table. The demand for Lettuces depends for popularity very much upon the character of the weather; in cold periods they are little sought after, but in warm weather there is a great demand for them.—A. D.

Hot-beds on Early Vine Borders.—The system recommended by Mr. Muir (see p. 413) of keeping the litter on outside Vine borders up to 90°, is altogether unnecessary, and is practised for no other reason than that our forefathers did it with the view of starting the roots into action before the branches began to push; but Vines starting naturally do not require the roots to be excited first. Why should forced Vines require such assistance? If they are well ripened in autumn, they always store up sufficient sap with which to start, and, if the borders are covered early in autumn with a foot or so of litter or leaves, and protected with shutters, the summer's heat is retained in them, and rain and snow have no ill effect on them. Keep the roots strong and healthy and ready for starting into growth, as soon as called upon by the foliage to do so, and Vines may be forced with satisfactory results for a great many years, without having recourse to hot-beds on the outside borders.—James Smith, *Waterdale.*

The Fruit Room at Arundel.—Being at the great fruit show at South Kensington on the 10th of November, I availed myself of an invitation from Mr. Wilson to see the fruit rooms at Arundel. Therefore, being fresh from the exhibition at Kensington, I had a good opportunity of comparing specimens of Apples and Pears. On entering the room in question, the first sight that met my eye was a long table, running the whole length of the house, filled with such an array of Apples as never came under my notice before. So good were all of them, too, that it would be invidious to give the palm to any one kind. In my opinion, however, the best among dessert kinds were Ribston, Blenheim, and Brandy Apple; and, among kitchen varieties, Alfriston, Gloria Mundi (true), and a sort called Bastard Ribston. Than these, anything more splendid in the way of fruit it would be difficult to conceive. Among Pears, which are grown here in quantities, I may enumerate Passe Colmar, Winter Nelis, and Beurré d'Aremberg, all fine fruit, and most excellent in flavour. In fact, the fruit room at Arundel is a sight worth travelling miles to see, so fine are the fruit.—R. Gilbert, *Burghley.*

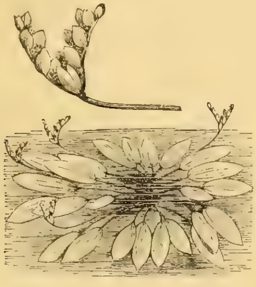
Ormson's New Boiler and Hot-water Stove.—In your last week's number (see p. 425) a mistake is committed in reference to my boiler and hot-water stove. They should have been called Ormson's Patent Upright Tubular Cornish Boiler, and Ormson's Patent "Arctic Hot-water Stove." Will you kindly correct this, and state that it is a new patent system of hot-water circulation, which is vertical, both as regards pipes and boiler; and all in one piece, there being no horizontal pipes. It is adapted to warming all descriptions of buildings, and can be put in any convenient place, and occupies very little space. If heated by coke, the cost is only one farthing an hour, and, if heated by gas, one halfpenny an hour.—H. Ormson, *Stanley Bridge, Chelsea.*

Protecting Salad Vegetables.—With the aid of the French cloches, or hand-lights, or garden frames of any description, or those improved shapes of movable contrivances, of which we see so many advertised glowing illustrations, all kinds of salads can be easily protected from very hard frost. Beds of Lettuce, Endive, Radishes, Watercresses, and many other things might be covered with them and preserved a long time. It is preferable, however, to leave these plants without cover as long as possible, or to have the sashes or tops of hand-lights off at night, even though it be frost, for 6° or 8° of frost will injure nothing in this way at this season. It is further on that these things get tender, and it is, therefore, best to keep them as hardy as possible. Coddling and too early protection are the bane of those useful necessaries of life. Where there is a quantity of cloches or hand-lights together in one lot, a piece of frigi domo or canvas stretched over the whole in hard frosty times is better than leaves.—Chevalier.

THE SCENTED POND-WEED INDOORS.

(APONOGETON DISTACHYON.)

To this, though well known, too much attention can scarcely be directed, inasmuch as it is one of the most interesting of hardy aquatics. We have often met with it in open tanks, streams, and other waters in ornamental grounds; but never in better condition than we saw it a year or two ago in the Edinburgh Botanic Gardens, where it produces its forked spikes of ivory-white bracts in abundance all through the winter months. Than this sweet-scented Pond-weed and its varieties few aquatics are better adapted for either plant-houses or conservatories. Planted in good fibrous loam wherever a depth of 6 or 8 inches of clear water can be obtained, it grows vigorously and flowers profusely. A small variety of it, called minor, is like the ordinary form in every particular except size, and this miniature kind is especially suitable for glass-cases in rooms. An inverted bell-glass, from 12 to 15 inches in depth, and about the same in diameter, is amply sufficient to accommodate a full-sized plant of this small-growing variety, which, if planted in a handful of rich loam and sandstone, grit, or gravel, will grow and flower freely and form an attractive room or window ornament during the winter and spring months. Spikes of its shining white bracts are also very useful in a cut state; but, like Nymphæa flowers, they must be placed in water or in shallow bowls of water and Sphagnum Moss as soon as they are cut from the plant. B.



Hawthorn-scented Pond Weed.

Greenhouse Climbers to Flower at Christmas.—In addition to the creepers recommended by Mr. Hobday (p. 391), I would strongly advise "Enquirer" to plant Tacsonia mollissima and T. Van Volxemii. These are exceedingly handsome fast-growing creepers and very rarely out of bloom. By training the main stem to the rafters or girders of a conservatory, and allowing the young shoots to depend thinly from them, they show off their beautiful flowers to great advantage. We have just now a plant of mollissima, growing in the manner described above, that has been flowering continuously all the summer, and, from the number of buds it is now showing, it promises to be almost equally good during the greater part of the coming winter. This variety has trumpet-shaped flowers, the tube of which is about 4 inches long, and of a delicate pale green colour, which shows off the beautiful pink petals to great advantage. T. Van Volxemii is a strikingly beautiful variety that ought to be in every house. It has large crimson flowers that are borne on thread-like stems, which vary from 12 to 18 inches in length, and, as these occur at almost every joint, some idea of the effect produced by such a number of flowers depending in this way may readily be formed. Although not so vigorous as mollissima, it is sufficiently so for ordinary purposes, and will cover as much space in a season as can generally be devoted to one variety. Tacsonia exoniensis is a hybrid between the varieties above named. The flowers are of a deep rose-pink colour with violet throat, and it possesses the good qualities of both parents. Unfortunately most of the Tacsonias are rather subject to scale, which, if not looked after and kept in check, increase to a great extent, and soon throw the plants out of health, but, as these pests are mainly on the stems they may be destroyed by using a stiff brush and some of the insect-destroying compounds.—J. SHEPPARD.

THE FLOWER GARDEN.

GARDEN VEGETATION IN SEPTEMBER.

By JAMES M'NAB, Royal Botanic Gardens, Edinburgh.

THE month of September was, on an average, rather favourable. The weather, during the early part of it, was, for the most part, dry, but rain prevailed towards the end of the month. The six lowest thermometer readings were on the mornings of the 1st, 11th, 12th, 23rd, 29th, and 30th, when 40°, 37°, 37°, 39°, 38°, and 37° were respectively indicated; while the highest morning readings were on the 3rd, 6th, 7th, 8th, 18th, and 20th, when 55°, 54°, 53°, 56°, 53°, and 56°, were registered. Autumn tints began to show early this year. About the middle of the month the trees of the Pavia flava were particularly beautiful, the foliage continuing for a considerable time of a rich golden hue without a leaf falling. About the same time the Norway Maples were very interesting, as well as the Betula pontica. Trees of the Sugar Maple were also particularly rich during the month, being covered with leaves of scarlet and yellow, which gave a glowing effect to the landscape. The American Oaks and Liquidambar were fast changing colour, as well as the varieties (but in a more decided form) enumerated in my August report, Early in September all the forms of Thuja aurea and Thuja elegantissima began gradually to assume the green colour peculiar to them in autumn; and, by the end of the month, the golden tints, which are so characteristic of these shrubs, had totally disappeared. The blue-green tint taken on by the leaves of healthy and vigorous trees of the Robinia pseud-Acacia had a singular appearance when contrasted with the leaves of neighbouring forest trees, whose autumnal dress inclines more to the red and yellow hues. Autumnal fruit-bearing trees and shrubs were well covered, such as the White Beam or Service tree, Mountain Ash, Cotoneaster affinis and C. microphylla, all the varieties of Crab Apples, Thorns, Holly, Yew, Elder, Snowberry, and others. With reference to the open air dwarf flowering shrubs, the hardy Heaths, Dabœcia polifolia, and its varieties, also Fothergilla alnifolia, were perhaps the most conspicuous; few others were wholly in bloom, although flowers, more or less abundant, were observed on many other species. In the herbaceous department, the greatest amount of bloom during September was to be found amongst the numerous family of Compositæ, and chiefly amongst the genera Aster, Rudbeckia, Helianthus, Eupatorium, Solidago, Pyrethrum, and Coreopsis. Tritomas have been rather a failure this year; the roots of many having been injured during the severe frost of last winter, while some plants were entirely destroyed. Flower spikes of Gynerium argenteum, or Pampas Grass, were also very deficient; and this deficiency was very general over the three kingdoms, resulting in some cases from partial injury received during the winter months, and, in others, from the drought they were subjected to during summer. One specimen, however, which I recently saw growing in the garden belonging to Mrs. Marks, Rutland House, Park Road, Kingston, Surrey, had no less than 130 heads, and formed a striking contrast with all others that I had an opportunity of observing. In the rock-garden few additional plants came into flower during the month, although a considerable number were to be seen in bloom, many of the kinds for a second time, and others from an unusual prolongation of their flowering period, in consequence of the moisture. On the 30th of September, about ninety-five species and varieties, exclusive of duplicates, were in bloom, the most conspicuous being—Acæna microphylla, Androsace lanuginosa, Bellis rotundifolia, Calluna vulgaris Serlii, C. v. flore pleno, Campanula floribunda, C. isophylla alba, Colchicum autumnale, double pink and double white, Coronilla varia, Dabœcia polifolia, alba, and versicolor, Dianthus deltoides, D. Henryanus, D. racemosus, Erica ciliaris, E. Lawsoniana, E. Mackayana, E. Maweana, E. vagans, E. v. rubra, E. Watsonii, Erodium macrodenium, Gypsophylla arenaria, Hedychium Gardnerianum, Hutchinsia alpina, Iberis Tenoriana, Linaria alpina, Lithospermum fruticosum, Menziesia cœrulea, Pentstemon heterophyllum, Petrocoptis Lagascæ, Polygonum vaccinifolium, Potentilla lupinoides, Pterocephalus Parnassi, Saxifraga Wilcommiana, Scabiosa gramuntia, Sedum ibericum,

S. spurium album, Stenactis speciosa, Thymus striatus, Tritoma Uvaria, Veronica rupestris, and V. spicata corymbosa.

DATES IN SEPTEMBER ON WHICH THE FOLLOWING PLANTS BLOOMED.

1. Sedum Fabaria
Calluna vulgaris flore pleno
2. Metrosma pilosa
3. Sedum Sieboldii
5. ,, Eversii
9. Gentiana Andrewsii
10. Chrysopsis villosa
11. Colchicum, double pink
12. Crocus nudiflorus
13. Erica hibernica stricta rubra
14. Colchicum, double white
Horkelia californica
15. Crocus speciosus
18. Colchicum rubrum
25. Erica Maweana

Garden Vegetation in October.

October is well known to be the month when the foliage of the trees exhibits the greatest variety of rich colouring. Some, however, as in the case of the Ash, Walnut, Elder, &c., only assume a dingy green tint. On the 30th of October many had their foliage still on, and, in some cases, quite green. Amongst these were the Oriental Plane, Alnus cordifolia, Quercus fastigiata, Sorbus vestita, Rhamnus catharticus, and others with smooth leaves, which eventually fall off more or less coloured. Other kinds then in leaf, with foliage that is more or less hairy, generally fall off in their green condition, such as the Celtis occidentalis, Black and White Mulberry, common Fig, and Catalpa syringæfolia. During the whole of October this year the tints of foliage on ornamental and forest trees have been highly interesting, perhaps more so than they have been seen at Edinburgh for a long time. Some have shown a rich crimson or red hue, some innumerable shades of brown and yellow, while others have all the tints, more or less, on the same tree, such as the Sugar Maple, Liquidambar, and the Virginian Creeper. The Tulip tree, when it first goes off, has its leaves equally divided between green and yellow; afterwards they all become quite yellow, in which condition they remain for eight or ten days, and ultimately assume a darkish brown hue, and then fall off. During October, the yellow tints were the most prominent, particularly as the Acer monspessulanum, A. campestre, Cratægus heterophylla, common Horse Chestnut, Quercus pannonica, Q. pyramidalis, Mespilus grandiflora, Carpinus Betulus, Betula alba, B. pontica, Sorbus Aria and other species retain their leaves for a long time in their coloured condition, while others fall immediately the yellow tint comes on them, as was observed in various species of Lime and Wych Elm. When leaves assume a dark red or deep brown hue, they generally remain much longer on the trees than many of the yellow tints. This was observed in the American Oaks, particularly the Quercus rubra, Amelanchier vulgaris, and some varieties of the common Beech. The ordinary purple Beech generally parts with its leaves early, and, when going off, the colour is scarcely discernible from the decaying foliage of some of the green Beeches, particularly the thick-leaved sorts. A variety of the purple-leaved Beech, not uncommon in the gardens at Corstorphine, comes out in spring of a greenish tint, during summer it is of a rich dark purple, towards autumn it again assumes the greenish hue, and ultimately goes off of a dark brown colour, not unlike the green varieties, but retains its leaves much longer than the ordinary purple form. The Corstorphine Plane (Acer Pseudo-Platanus var. lutescens) is known all over Europe, during the spring months, from the yellow tint of its leaves. During summer they become as green as the ordinary Acer Pseudo-Platanus. In autumn no difference is observed in the falling foliage from the ordinary green sorts, it being generally of a dingy yellow-green. In the variety cultivated under the name of the Acer Pseudo-Platanus var. purpureus, although no difference is observed in the leaves when they first come out, the purple tinge peculiar to the under side of the leaf becomes very conspicuous during summer; and, when the leaves fall from the tree in autumn, this is distinctly visible, although the surface of the leaf has the greenish-yellow hue peculiar to the typical species. The Silver or Variegated Acer Pseudo-Platanus, generally comes out in spring with a pale green colour; during early summer the variegated or white portions become distinctly visible; and, when the leaf falls in autumn, the variegated or white parts become a clear yellow, and the green portions the dingy yellow-green colour peculiar to the species. The Cratægus oxyacantha lutescens comes out in spring a rich yellow hue, and continues so for many weeks; during summer the leaves become perfectly green, and were so on the 30th of October. The Scotch Laburnum, noticed in my report for July, as having the points of all the top shoots of a rich golden-yellow, contrasting admirably with the dark green leaves, has now the golden-yellow tint nearly all over; but no leaves had fallen on October 30th. Although no flowers were produced in the garden on the Scotch Laburnums this year, the trees have made up for the loss by their charming masses of tufted yellow foliage, particularly when seen growing in a position where the rays of the setting sun have access to them. A similar effect is also produced during some years, while the trees are covered with fruit in thick yellow-green masses long before the ripening of the seed. The foliage of the Pavia flava and Amelanchier vulgaris has been remarkably fine this autumn, as they retained their coloured leaves for a much longer time than most other trees. The former was of a rich yellow colour, while the latter was of a deep red hue. As both appear in perfection about the same time, they ought to be extensively cultivated as foreground trees for producing autumn landscape effects. During the month of August, many leaflets fell from the Locust trees (Robinia Pseud-Acacia), all of a deep yellow colour, as noticed in my report on vegetation for that month, probably at a period when some changes were taking place in the juices of this tree. In September, the foliage of the Robinias all assumed a peculiar blue-green tint. They afterwards fell off to a dark green colour. Owing to the rich and varied tints, and the peculiar circumstances attending the change in the colour of the foliage of certain trees, it would be highly desirable to have some competent chemist to analyse the fluids contained in the leaves, so as to enable us to account for the various colours which many of them generally assume. Although the tints of the arboreous vegetation at Edinburgh have this year been fine, it does not always follow that the same varieties show that richness of colour in other soils and situations. During a recent tour (early in October) through a portion of England and Ireland, I was surprised to find many of the varieties of trees, here enumerated, in their normal green condition, although many were coloured at Edinburgh before I left. The trees being further south, and, therefore, better ripened, I expected to find their tints in advance of those of this country. Perhaps this may be accounted for by the comparatively dry weather experienced at Edinburgh compared with other parts of Great Britain. Although rain frequently prevailed here, the under strata or sub-soil has been excessively dry, owing to the rains not being sufficient to penetrate it. Nothing could exceed in richness the foliage of the Virginian Creeper as seen in many parts of England this autumn, but more particularly on the old colleges and other buildings at Oxford. The Ampelopsis Veitchii and A. tricuspidata were also gorgeous in several places, but not cultivated to the extent they justly deserve. During the month the foliage of some shrubby plants have also been very interesting, particularly the varieties of Azalea—the A. pontica being the most prominent, owing to the rich tints of crimson and yellow it puts on. The Fothergilla alnifolia was also interesting for its yellow hue. The Weigela amabilis surpassed all others, the long branches of its pinnate leaves hanging gracefully all round the plant. Each branch is composed of ten or twelve pairs of leaflets, the uppermost pair being generally of a reddish-golden colour—as they near the middle of the branch they become beautifully shaded off to a rich yellow between the middle and the point, the yellow and green leaves become gradually mixed, while three or four pair of leaves nearest the points are totally green. The leaves of this deciduous shrub remain for a considerable time in their transition state; it is, therefore, well worthy of more extensive cultivation, not only for its flowers, but for the tints it affords in autumn. Of fruit-bearing trees and shrubs, the most conspicuous at the present time are the Hollies, Yews, Cotoneaster microphylla, Euonymus europæus, Pyracantha, Thorns, and Snowberry. Of flowering shrubs the Arbutus Unedo, Laurustinus, Escallonia macrantha, and Jasminum nudiflorum, are the chief ones in bloom. Flowering herbaceous plants are much the same as those recorded for September, the Compositæ being the most numerous. On the rock garden eighty-six species and varieties, exclusive of duplicates, are still in flower, the most attractive being the late varieties of the hardy Heaths and Dabœcias, as enumerated in the September list, also Acæna microphylla, Androsace lanuginosa, Bellis rotundifolia, Dianthus deltoides, Erodium macrodenum, Gypsophila arenaria, Hedychium Gardnerianum, Helleborus niger major, Linaria alpina, Lithospermum fruticosum, Polygonum vaccinifolium, Potentilla lupinoides, Pterocephalus Parnassi, Scabiosa Gramuntia, Sedum ibericum and S. spureum, Thymus alpinus and T. striatus, Tritoma Uvaria, Veronica rupestris and V. spicata corymbosa. The brown tint is now very distinct on all the shrubs of Thuja aurea and T. elegantissima. The transition state this year has not been very rapid, but this is always very marked when the cold at this season is more intense. The six lowest morning temperatures were on the 10th, 12th, 13th, 25th, 26th, and 29th, when 30°, 26°, 29°, 31°, 31°, and 32° were registered; while the highest morning temperatures were on the 1st, 8th, 18th, 22nd, 23rd, and 24th, when 50°, 50°, 45°, 46°, 47°, and 45° were indicated. November set in with much rain, attended with high winds and afterwards severe frost, which has denuded the trees of their leaves, and has, therefore, deprived us of many of their beautiful autumnal tints.

IVY IN THE GARDEN.

Few of our native plants are so common because few are so well able to adapt themselves to circumstances of soil and situation as the Ivy. On walls the clustering tangled roots of this favourite climbing plant form a complete network over the stones; and, with an occasional trimming to prevent the wind getting hold of a straggling shoot and tearing it down, it will continue for many years without undergoing any material change, and neither does it, as has often been supposed, tend to hasten the decay of the structure, but acts, on the contrary, as a preservative, as an examination of any old ruins that has been many years covered with it will prove. It has often been said that Ivy has a tendency to make buildings damp; but, wherever that has been the case, it arises from neglect in not having it properly trimmed in, or in allowing it—and this it soon does if neglected—to take possession of the water gutters or pipes, and so cause an overflow. To have Ivy in good condition it should be cut in close to the wall, taking off all the old leaves every spring. About the end of April is the best time, as it breaks into growth, almost immediately covering the walls with a beautiful mantle of bright green foliage, the leaves so placed one above the other that no rain or damp can ever penetrate. In the case of old walls or ruins, it is not necessary to trim it so closely as on an inhabited dwelling, as, by so doing, its fruiting is prevented; and thus one of its most beautiful features at this season of the year is lost. Is it generally known how fond sheep are of Ivy? We could never keep them from disfiguring the walls that are here covered with it, until a stout iron fence was erected 3 feet from the foot of the walls to keep them off; and even now I often see them with their fore-feet on the top of the fence struggling to reach a stray leaf. Of late years a very considerable use has been made of Ivy in ornamental gardening as edgings to beds and borders, and sometimes for forming patterns of dwarf dark green foliage, that look fresh and beautiful at all seasons, but especially so in hot weather, when the Grass is scorched up. Few plants are so well adapted for quickly forming an evergreen screen or blind for shutting out an unsightly object, provided there is anything for it to cling to for support, or where it can be tied till its growth has interlaced and secured itself. It is also one of the very best plants for forming a green carpet under close growing evergreen trees—like the Cedar of Lebanon and others—where nothing else will grow, owing to the dry sombre character of the situation, but occasional watchfulness will be necessary to prevent its climbing up the trees and taking possession of the main branches, which it would strangle in its close embrace. The tree Ivies, either trained as standards or pyramids, form handsome subjects either for formal or picturesque gardening, and many of the newer variegated forms, when they become more common, will be exceedingly useful in ornamental gardening, and also for covering screens, &c., in room decoration. Ivy is easily propagated, both by cuttings and seeds. E. Hobday.

Ramsey Abbey.

SALVIA SPLENDENS AS A BEDDING PLANT.

"H. J. C." (p. 404), must, I think, be mistaken in the variety of Salvia he is growing, as S. splendens is a late bloomer, and only fit for indoor work. It is one of the most valuable plants with which I am acquainted for decorating the conservatory, where, if the temperature is dry and warm, it will continue blooming till near Christmas. We depend very much on it for the above purpose, and its brilliant flowers show up in pleasing contrast against the pale walls and large stone jardinieres, with which the house is furnished. The variety that "H. J. C." uses, and speaks so highly of as a bedding plant, is most likely S. fulgens, a really useful variety for that purpose, but not half so effective or useful for indoor work as S. splendens. The latter has large smooth shining deep green leaves and very bright scarlet flowers, while those of fulgens are of dull red colour, with rough leaves that bear a great resemblance to those of Sage. While on the subject of Salvias, allow me to say a word in favour of S. Heerii. This, too, is a most valuable variety, and quite as indispensable for early spring decoration as S. splendens is for autumn use. For supplying cut flowers, Heerii stands quite unrivalled among Salvias, as most of them in a cut state are very short-lived. Not so, however, with Heerii, as it lasts a long time in water, and a few of its light branching feathery sprigs are always a valuable addition in dressing a vase, to which they impart a very bright and finished appearance. The habit of this plant is all that can be desired; and its foliage is of the most ample description, which it always carries well down to the pot. Cuttings put in any time in the spring, just after they have done blooming, make grand plants by the following autumn; but, if very large sizes are required, a few should be kept over after blooming, to be cut down to one or two eyes, and then grown on again. There is no difficulty in growing plants, so treated, a yard through; and, as they are exceedingly free-blooming, specimens of that size make a fine display. J. Sheppard.

[We have seen Salvia splendens used effectively as a flower-garden plant. It was at Bicton in Mr. Barnes' time.]

Leucophyta Brownei Out-of-doors.—I agree with Mr. Wildsmith (p. 389) in thinking that this plant is destined to become very popular for general flower-garden decoration. Used as edging plants to beds of any dimensions, its showy foliage has an exceedingly light and graceful effect. It is also suitable for carpet bedding, and will submit to any amount of pinching or clipping. Cuttings should be inserted pretty early in the autumn in pots or pans in a mixture of sand and finely-sifted leaf soil. It will, at this time, strike root freely in a cold pit or close frame. In spring the rooted cuttings should be potted off singly, or they may be pricked into seed-pans or boxes, and should be encouraged to grow freely, in order that the plants may be of considerable size when planted out, as they do not grow rapidly during the early part of the season. I think that this plant will be found to be sufficiently hardy to resist the cold of ordinary winters, although it did not do so here during last winter. The plants, however, occupied a somewhat unfavourable situation, which may partly account for their failure. I have used it during two seasons, but I know nothing of its history; it must, however, be of comparatively recent introduction.—P. Grieve.

Mignonette for Cutting Now.—It is a good plan to sow Mignonette seed in some out-of-the-way spot during the month of June, as it germinates speedily after the first shower, and grows into strong flowering plants by the end of September. If the spot be slightly sheltered by trees the plants will not be affected by the earlier frosts, and as a considerable interval often elapses between these and severe winter weather it is easy to secure an abundant supply of sprigs of this fragrant flower long after other tender plants are over. There is no finer and more useful Mignonette than Parson's Giant white variety, as it grows rapidly, and has long neat branches and flowers that are whiter than those of any other kind. From self-sown plants of this kind I can now cut, at any moment, handfuls of sprigs, that are most acceptable at this period of the year.—A. D.

Sweet-scented Flowers for the Wild Garden.—There are few hardy plants that deserve more general cultivation than Honeysuckles, for, in addition to the great beauty of the flowers of many varieties, their odour is invariably delicious, and this is particularly the case during cloudy weather or early in the morning. For the wild garden, or for planting near retired walks or along the backs of borders amongst shrubs, nothing can be more suitable, as they add much to the enjoyment such places afford after the eye has become weary of the stiff formality and glare of the dressed garden. There are few places now where old-fashioned sweet-scented flowers are to be met with in quantity, as the present system of decoration has swept most of these out of cultivation to make room for gaudy colours, and it is undoubtedly a pleasure in these days to ramble in grounds where hardy flowers can be met with unaccompanied by the too obtrusive bedding plants. The wild garden is just the home for many of these, and a place where the Honeysuckle should hold a prominent position. Few plants are more accommodating in their manner of growth, and varieties may be selected to suit almost any position—some twining persistently round branches, while others do not require assistance, and may be grown as dwarf shrubs, or simply supported by iron rods or stakes. If an evergreen creeper is required for covering an unsightly object, or for twining over rustic arbours, there is nothing to equal the Honeysuckle, and if a Rose be added the combination is perfect. There are many sweet-scented plants and flowers that are adapted for planting in the wild garden. Amongst these may be mentioned the Sweet Briar, Lavender, Southernwood, Mint, Pennyroyal, Musk, Rosemary, Violets, and Mignonette.—J. Sheppard, *Woolverston.*

The Best White Edging Plant.—If I were asked to name the most useful, and, at the same time, the most lovely of the dwarf white edging plants now in use, I should say Achillea umbellata. It is perfectly hardy, and certainly requires less manipulation than the dwarf Cerastium tomentosum. The latter requires renewing every year, whereas the former will be as effective the second and third year as the first. For carpet bedding it is a gem in every way, and only requires to be known to be appreciated. It is easily increased by cuttings taken off in September or October and dibbled in very thickly under a wall. We have thousands planted under the foot of a west wall, and they give no more trouble than this—after a severe frost in spring, to sprinkle a little sifted leaf mould over the cuttings, and with the hand press into the soil those that have been forced out by the frost. The few leaves falling from the fruit trees give sufficient covering now until rooted, after which they will take care of themselves.—Chevalier.

Pruning Tea Roses Out of Doors.—In a grand old rectory garden that I had lately the pleasure of visiting, are a large number of fine standards of Tea-scented Roses, and, as they are pruned somewhat differently from the customary way, a brief allusion to them may be of some service. The strong-growing Tea Roses, such as Gloire de Dijon, produce annually a number of stout rods, and, as will have been noticed by those who prune their Roses by the rule of thumb, these, when pruned hard back, produce other strong shoots. Now, the practice in the garden here referred to is to leave these stout rods nearly the whole length, merely cutting off the soft tops, and after the small spray has been cut hard back, and a portion of the old wood removed to prevent overcrowding, they are tied down horizontally to neat stakes fixed right and left of the tree. From nearly every bud a shoot bearing flowers is produced, and the display of bloom throughout the season is marvellous. These shoots are removed in the winter following to make room for others.—"Gardeners' Magazine."

Grass Edging Plants.—Among those suitable for either flower or kitchen garden, says the "Florist," are the fine-leaved forms of Festuca, one of which has been introduced under the name of Festuca viridis. This slender-leaved Grass makes a remarkably fine, and at the same time dense, growth, and the leaves are of a bright olive-green colour. It will bear clipping during the summer, and it is so hardy that it will stand through the severest weather without injury. Selected forms of Festuca ovina have for many years been used for edging purposes in the Chelsea Botanic Garden, and when young are very neat and pretty, but they should not remain over the second year without re-planting. The plants divide readily, and may be either dibbled in or planted in the same way as box-edging.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Curculigo recurvata for House Decoration.—This is one of the most useful and ornamental of Palms. In places where there is a good deal of house decoration it will be found of great value. It is rapid in growth, and throws up quantities of suckers, which soon make useful plants.—R. Greenfield, *Priory Gardens, Warwick.*

Wintering Aralias and Cannas.—I have to thank Mr. Sheppard (p. 407) for his notes on Aralias. A. japonica is, however, not mentioned, and it was that variety which struck me as being so very fine. Cannas I can manage well, but 9° of frost on the 9th inst. finished them for this season, and now they are littered down in the beds for the winter.—N. H. P., *Radclyffe-on-Trent.* [A. japonica is a hardy shrub, attaining a height of 18 feet in some parts of the country.]

Adiantum gracillimum.—This will prove of great service for house decoration, and likewise for the exhibition-table. Looked at by gaslight it is quite a gem. Here it is the admiration of all who see it. It is a free grower—equally free, indeed, as the old A. cuneatum, which it far surpasses in beauty.—G. R., *Warwick.*

Fuchsia Dominiana a Useful Pillar Plant.—For rafters and pillars this Fuchsia is invaluable, its dark coloured foliage and pale scarlet flowers harmonising well together. It has been in bloom here for these last three months, and it promises to continue in that condition for some time to come.—R. Greenfield, *Priory Gardens, Warwick.*

BONES AND OYSTER SHELLS AS MANURE.

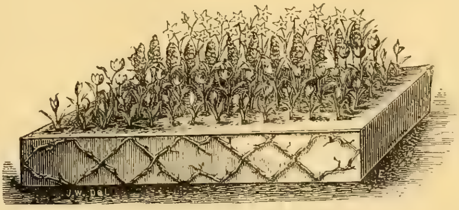
Bones constitute one of the most valuable and lasting of manures, though much depends upon the way in which they are applied. Broken, or in the form of bone dust, they are frequently used in the culture of pot plants; but very often they might as well be dispensed with altogether for any good they do. It is one of the most common practices to apply fresh bones to such subjects as Pines, pot Vines, fruit trees in pots, &c., at the periodical pottings; and, in the belief that they are providing an extra stimulant, many gardeners even drain their pots with half-inch bones fresh from the mill, but no startling results are ever produced by such practices. Were the plants going to remain undisturbed in the same pot and soil for years it would be quite a different thing; but when they have to be potted annually or oftener, or, as in the case of Pines and pot Vines, for instance, thrown away when they have done fruiting, the bones are almost entirely wasted, because they have not had time to exert any influence upon the plants, for the reason that roots will not touch bones in a fresh state. Applied to Strawberries and plants that require manures which will come into action at once, we cannot say we ever saw them produce the least effect. Some time ago we saw about a thousand pot Strawberry plants—a poor lot indeed—that had all been drained with fresh bones, but in no instance had the roots taken possession of them, as they were expected to do. Plant after plant was turned out at our request; but, though the roots were found in some cases to have rambled through the bones and out at the hole in the bottom of the pot, they had avoided the bones, taking no notice of them whatever. Instances of Vine roots putting out a host of fibres to grasp a bone have been given, and we believe them, for we have seen such things ourselves; but we never saw a root attack in such a manner a bone that was not in an advanced state of decomposition from being years in the soil. We lately lifted a lot of Vines from a border well manured with broken bones, and in which they had been growing for three years, but no such instance of feeding came under our notice. In fact, the fresh condition of the bones surprised us. That the bone dust supplied to the border at the same time had benefited the Vines we have no doubt; but the broken bones appeared to have been so far partly inert. The softer pieces had begun to decay; but generally they were as clean as on the day when they were put in. Along the brick pillars and walls the roots had, however, scrambled—at some places in a mass—and filled up the interstices with a multitude of small fibrous roots. Doubtless the bones would have done excellent service in time. It is much the same with shells as with bones. Oyster shells are often recommended for Vine borders, and no doubt they become a good manure, being something like bones in their action; but used fresh, and in a whole state they are not immediately beneficial. Some time ago we had a few Vines from a grower who drains his pots with whole oyster and mussel shells. The plants were not remarkable for vigour, and on turning them out of the pots the shells fell out in a heap, not a root amongst them, save one which had travelled round the rim of an oyster shell, when decay had begun, showing that, had the shells been well broken and pounded, and laid up in a compost for a year or so before using, they would have been highly serviceabe. Chemists have told us long ago that fresh bones, though the most lasting, do not act immediately as a manure; but their teaching is not always recognised in practice among gardeners. For pot plants, fresh bones are of little service; dissolved they act at once, and a considerably less quantity is required; laid up to ferment in a compost of soil for a year fits them also potting purposes. Some of the patent manures now sold are mostly dissolved bones, finely reduced, and when not too much adulterated they are amongst the best of stimulants for plants, and are also clean and do not smell offensively. Some of these we apply regularly to Strawberries and pot Vines with very marked results. Fresh bone dust is not nearly so quick in its action. We have had this perfectly pure from the cutlery bone handle-makers, fresh from under the saw, and as fine as flour; but it is not equal to dissolved bones, owing, no doubt, to its being fresh. It is preferable, however, to lump bones for potting. As about many establishments, in connection with dog-kennels and other departments, bones accumulate, and are crushed at home, it is well to understand the simple process of dissolving them. Sulphuric acid is usually employed for this purpose, and it is poured upon the bones at the rate of about one-third the weight of the bones. The bones may be mixed with soil before being applied to plants, or they may be made into manure. To pot plants, the powder may be sprinkled on the surface of the soil, to be washed in with the waterings. J. S.

Ferns for Mattresses.—The softer parts of common Ferns, if stripped from the stems and dried in the sun, retain their toughness and elasticity for a long time, and are said to be superior to various substances commonly used for stuffing mattresses.

THE INDOOR GARDEN.

BULB CULTURE IN BOXES.

One of the best methods of growing Hyacinths, Snowdrops, and Polyanthus Narcissus for room decoration in the spring is to plant the bulbs at once in boxes of light, rich, loamy soil, after which they should be placed in a shady corner, and covered to a depth of from 4 to 6 inches with common yellow sand or coal ashes. The object of this is to keep the bulbs moist, and firmly in their places, until they have rooted freely into the soil, and also to protect them from any sudden changes of temperature. It is usual for amateurs to neglect this part of bulb culture entirely, and this accounts, in a great measure, for their non-success in bulb growing. The bulbs are bought and potted or planted in boxes, and subjected to the temperature of a warm room, a proceeding which at once causes the growth to be weak and colourless, the usual result being either puny few-flowered spikes, or no flowers at all; a state of things which is commonly accounted for by accusing the seedsman of having sold bad bulbs. After planting the bulbs, however, in the boxes, and banking them up out-of-doors with sand or ashes, then the question arises—How long they are to remain thus before they are brought into the room or window? But this is a matter of no very great importance—they may remain at least a month or six weeks, after which it will be found that the plump yellowish green buds have pushed into the sand, and this is a tolerably sure sign that the roots are at work in the soil below. If more than one box is filled with bulbs one can remain a month under the sand, after which the latter should be cleared off, taking care not to injure the bulb growths in the operation, and having levelled the soil about the bulbs, wash the box and place it near or in the window. The other boxes may be removed at intervals of a week or a fortnight, so as to have the flowers in gradual succession, and in this manner the room or window garden can be kept gay for two or three months in the spring. As to planting the bulbs, it is a general rule to plant Snowdrops about 2 inches deep in the soil; the same applies to Crocuses, while little more than two-thirds of the bulbs of Hyacinths and Narcissi are buried in the soil, that is when they are grown in pots or boxes. When planted in the open beds or borders, however, they are buried just like all other bulbous plants. Our illustration represents a box of spring flowering bulbs, and it is difficult to imagine a more pleasing room or window ornament, during the early spring months. Of course all the bulbs named are quite hardy, and while some of the more ornamental boxes are brought inside, others—ordinary window boxes—may be placed on the sill outside, where they will bloom nearly as well as those indoors, but of course a little later. B.



Spring Flowering Bulbs.

BEST WINTER TREE CARNATIONS.

In a collection of a dozen sorts of these useful plants we find Zouave, Covent Garden Scarlet, Valiant, and Miss Jolliffe to be the freest flowerers in winter. The colours of the three first consist of different shades of scarlet. The last is a beautiful pale pink variety, and most deliciously scented. Good bushy plants of these in 5 and 6-inch pots are now supplying us with fine blooms. They are growing in a light airy house in a night temperature of 50°. We propagate a stock, consisting of about 200 plants, annually, dividing them into two sections. The first is introduced into heat early in March; the second late in April. The cuttings are taken from plants in a growing state, and about a dozen are dibbled into a 5-inch pot in a compost of two parts sandy loam, and one part each of well-rotted leaf soil and silver sand, surfacing the pots with half-an-inch of sand. We then plunge them in a bottom-heat of about 80° in a close frame or pit, keeping them shaded during sunshine, and damping them over daily with a fine syringe. As soon as they are rooted we pot them off into 3-inch pots in the same compost as has just been mentioned, replacing them in the pit until they have become established; they are then gradually hardened off in a cold pit as soon as the bedding plants are removed from some turf pits which we have. When the Carnations are potted into their blooming pots we use a compost of two parts friable loam to one part leaf mould and pigeon manure in about equal quantities. A small Hazel stick, about 2 feet long, is put to each plant, to which they are tied as they grow. They are then set on a bed of ashes in the turf pit; this is done, say, the first week in June. The treatment from that time until they are housed in September consists merely in seeing that they do not suffer from want of water. They should be protected from heavy rains with some old sashes, but they should be gently syringed in the evenings of hot sunny days. By following the above treatment we have not been without Carnation blooms for a week during the past three years, and the prolongation of the fragrant bloom of these Carnations through the winter and spring months constitutes one of the most gratifying successes of our indoor gardening. C. J. H.

CHINESE PRIMULAS.

Seeds of these sown in March, in pans previously prepared, and forced in a gentle bottom-heat under a square of glass, with slight waterings when the soil appears dry, soon germinate. When large enough to handle they should be pricked off into large pans filled with a good compost, consisting of two parts turfy loam, one leaf mould, one rotten cow dung, and a good sprinkling of silver sand, all well mixed together before being used. When pricked off they may be replaced and kept close for a day or two until they root into the soil, which they will soon do if kept close and warm. When they have made three or four rough leaves, they should be potted off into 60-sized pots, small and large, according to the strength of the plants. They should then be placed in a pit or frame by themselves, when they should receive a gentle watering to settle the soil about the roots. Keep them close for a few days, when air may be given in the daytime; and, as the weather becomes warmer, a little air ought also to be left on at night. A little light shading during bright sunshine will likewise be of advantage to them. Under such conditions, they soon fill their pots with roots, when they should be shifted into 32-sized pots, and placed in a cool frame; and, if facing the north, all the better, inasmuch as shading will not then be needed, but if facing the south, the lights may be whitewashed, and tilted on their sides, care being taken to have them so that wind will not injure them. Plants treated in this manner will show bloom in September, and, if required, may be allowed to flower at that time; but, if not, the flower-stalks should be picked out as they appear. In October, they should be removed to a light airy house, at the same time giving them a top-dressing of rotten cow-dung, broken into small pieces. The latter will be found to afford them great assistance. In watering, care must be taken to only give just sufficient, as damp is their greatest enemy. Plants, treated as has just been described, will bloom from November to February; and, by sowing for succession again in May, and growing them on as the others have been, this Primula may be had in bloom till next May, if well attended to.

Eaglehurst, Fawley, Hants. W. Watson.

The Ethiopian Lily (Calla æthiopica).—This is one of the most useful winter-blooming plants we possess, when subjected to proper treatment. To have it in bloom from November to March, in spring, when it has done flowering, the plants should have a liberal shift, disturbing the roots as little as possible. They are not particular as to soil, but a good rich compost suits them best. When potted they should be placed in an intermediate house or moist pit, and kept close for a time until they begin to grow, when air may be freely admitted and copious waterings given while they are in active growth. In June water may be used more sparingly, and the pit or house in which they are placed should be kept cooler, gradually allowing them to be fully exposed to the open air, and plunging the pots in coal ashes or some other cool material most convenient; only sufficient water should be given to keep them from shrivelling. In August they should be replaced in the pit and well watered; under such conditions they will soon begin to make fresh growth, when most of them will show bloom, which can be forced or retarded as circumstances require, for they will bear cool or hot treatment without injury.—W. W., *Eaglehurst.*

HYBRIDS RAISED BY MESSRS. VEITCH & SONS.

We have been favoured, by the Messrs. Veitch, with the following authentic list of the various hybrids raised in their gardens, many of which are of remarkable value and interest.

PROGENY.	PARENTS.		
Nepenthes Dominii	N. Rafflesiana	and	N. species (green)
N. hybrida	N. distillatoria	,,	N. sp. (spotted)
N. h. maculata	Ditto	,,	Ditto
N. Sedeni	Ditto	,,	Ditto (red)
N. Chelsoni	N. Hookeriana	,,	N. Dominii
N. intermedia	N.species (very dark)	,,	N. Rafflesiana
Cattleya exoniensis	C. Mossiæ	,,	Laelia purpurata
C. Dominiana	C. Amethystina	,,	C. maxima
C. D. alba	Ditto	,,	Ditto
C. D. lutea	Ditto	,,	Ditto
C. D. hybrida	C. granulosa	,,	C. Harrisoniæ
C. Sidneana	C. crispa	,,	C. granulosa
C. Brabantiæ	C. Loddigesii	,,	C. Aclandiæ
C. quinquecolor	C. Aclandiæ	,,	C. Forbesii
C. Devoniensis	C. crispa	,,	C. guttata
C. Manglesii	C. Mossiæ	,,	C. Loddigesii
C. Veitchii	C. crispa	,,	C. labiata
C. hybrida maculata	C. guttata	,,	C. intermedia
C. Fausta	C. Loddigesii	,,	C. exoniensis
Cypripedium Dominii	C. Pearcei	,,	C. caudatum
C. Harrisianum	C. barbatum	,,	C. villosum
C. vexillarium	Ditto	,,	C. Farrieanum
C. Sedeni	C. Schlimmi	,,	C. longifolium
C. Marshallianum	C. concolor	,,	C. venustum pardinum
C. Arthurianum	C. Farrieanum	,,	C. insigne
C. Selligerum	C. lævigatum	,,	C. barbatum
C. hybridum	C. Stonei	,,	Ditto
C. tessellatum	C. concolor	,,	Ditto
Calanthe Veitchii	C. vestita	,,	Limatodes rosea
C. Dominii	C. masuca	,,	C. furcata
Phaius irroratus	P. grandiflora	,,	Calanthe Veitchii
Anæctochilus Dominii	A. xanthophyllus	,,	Goodyera discolor
Goodyera Veitchii	G. discolor	,,	Anæctochilus Veitchii
G. Dominii	Anæctochilus Lowii	,,	Goodyera discolor
Aërides hybridum	A. affine	,,	A. Fieldingi
Lælia Pilcheri	L. Perrini	,,	Cattleya crispa
L. P. alba	Ditto	,,	Ditto
Dendrobium Dominii	D. nobile	,,	D. moniliforme
Lælia flammea	L. cinnabarina	,,	L. Pilcheri
Zygopetalum Sedeni	Z. maxillare	,,	Z. Mackayi
Chysis Chelsoni	C. bractescens	,,	C. Limminghi
Alocasia Sedeni	A. Lowii	,,	A. metallica
A. Veitchii superba	A. Veitchii	,,	A. Lowii
A. intermedia	A. longiloba	,,	A. Veitchii
A. Chelsoni	A. metallica	,,	A. macrorhiza
Dracæna hybrida	D. magnifica	,,	D. albicans
D. Taylori	Ditto	,,	D. Moorei
Rhododendron Princess Royal	R. javanicum	,,	R. jasminiflorum
R. Princess Alice	R. Edgworthii	,,	R. ciliatum
R. Princess Alexandra	R. Princess Royal	,,	R. Brookeanum
R. Princess Helena	R. Lobbi	,,	R. jasminiflorum
R. Princess of Wales	Ditto	,,	R. Princess Royal
R. Princess Thyra	R.Brookeanum gracile	,,	R. Princess Helena
R. Crown Princess of Prussia	Ditto	,,	Ditto
R. Duchess of Teck	R. Lobbi	,,	R. Princess Royal
R. Duchess of Edinburgh	Ditto	,,	Ditto
R. Prince Leopold	Ditto	,,	Ditto
Begonia Sedeni	B. species	,,	B. boliviensis
B. intermedia	B. Veitchii	,,	Ditto
B. Chelsoni	B. Sedeni	,,	Ditto
B. Stella	Ditto	,,	B. Veitchii
B. Vesuvius	Ditto	,,	B. Clarkii
B. Excelsior	B. cinnabarina	,,	B. Chelsoni
B. Model	B. Pearcei	,,	B. Sedeni
B. Acme	B. intermedia	,,	Ditto
B. Emperor	B. Clarki	,,	B. Chelsoni
B. 30 C	B. Sedeni	,,	B. intermedia
B. 90 A	Ditto	,,	B. Stella
B. Dominii	B. Rex	,,	B. argentea
Amaryllis Chelsoni	A. Ackermanni pulcherrima	,,	A. pardina
A. maculata	Ditto	,,	Ditto
A. Brilliant	Ditto	,,	Ditto
Fuchsia Dominiana	F. spectabilis	,,	F. serratifolia
Philegeria Veitchii	Lapageria rosea	,,	Philesia buxifolia

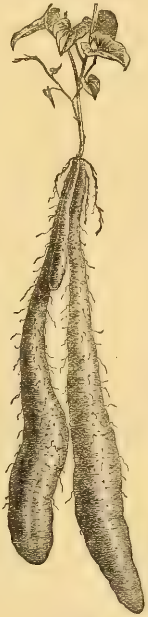
Gloxinias, many hybrids.

THE KITCHEN GARDEN.

YAMS.

These are cultivated in every country the climate of which is favourable to their growth. They are herbaceous and annual as regards their long creeping stems, and perennial as regards their tubers, which are full of starch, to which is added a large amount of saccharine matter. Like all plants that have, for any length of time, been subjected to cultivation, they have sported into a large number of varieties. They rarely flower in northern latitudes, and are perpetuated by means of tubers and cuttings. Yams are, so to speak, the Potatoes of inter-tropical climates, and they furnish, from an equal area of ground, far larger returns than those of the common Potato. Introduced into France at the commencement of the seventeenth century, they were for a long time only objects of curiosity, and were never seen out of a hothouse; but, towards the middle of the eighteenth century, an attempt was made to cultivate them out of doors, and as it succeeded they soon became fashionable. Now-a-days they are but little grown by the Paris market gardeners; but in private gardens of any importance they are plentiful enough. Their tubers, cooked in their skins in an oven, afford an agreeable food, which some, however, object to on the score of sweetness. The varieties of Yam, or Sweet Potato, cultivated in France are not numerous; the most common are the Rose of Malaga, or Algerian Red, the Argenteuil, and the Yellow Yam, all of which are distinguished by the size of their tubers. There are also white Yams, but these are less choice than the red, rose, and yellow varieties. If flavour only is considered, the Red Algerian should occupy the first rank, but it is much less productive than the yellow variety, which, on that account, is to be preferred. It must not be forgotten, however, that the quality of Yams, of all colours, is modified, according to the soil and climate in which they are grown; and this fact explains the wide divergence in the opinion of gardeners as to the relative merits of the different varieties. The culture of Yams cannot always be conducted in the same manner. In the south of France they are not more difficult to grow than Potatoes. There they are planted in spring in ground that has been well tilled, and which has been divided into ridges, on the summits of which the plants are set. The ridges soon become covered with haulm, and are abundantly irrigated. About Paris and throughout the northern districts of France, Yams only succeed on hot-beds, especially in cold years. The method of procedure is as follows:—Forcing commences in January; well formed healthy tubers are selected for the purpose, and are placed upon a hot-bed under a frame, on the top of which straw is, in addition, laid at night. After a few days these tubers begin to vegetate. When the shoots have attained a length of 2 or 3 inches they are removed with a small portion of the tuber attached to each, as in the case of Dahlia cuttings, and are then potted separately in small sized pots, which are plunged in the hot-bed and covered with cloches. When the sets have taken root the cloches are raised by degrees, so as to gradually harden the plants off, but without exposing them to cold. They are planted out permanently during the first fortnight in February in a bed composed of equal parts of manure and leaves, to which should be added twenty-five per cent. of good garden soil, and frames are put over them. If the bed cools down too much, the heat should be kept up by means of fresh manure applied from time to time. As the plants increase in size, and the outside temperature rises, air is given and they are wholly exposed when the weather has become warm. If the planting has been properly effected, by the end of May, or the beginning of June, tubers may be obtained of a useful size without altogether lifting the plants, which will continue to grow until frost sets in. For a second crop of Yams, planting takes place in April upon beds made up as for Melons, the sets being covered with cloches, which are protected during the day-time from hot sunshine, and that are raised gradually when the roots have struck. A little later, these cloches are wholly removed; that is, when they no longer cover the haulm of the plant. Yams may again be planted in May or June; but the sets must then be taken from developed plants, because the tubers of the preceding year cannot be preserved up to so late a period. The stalks, besides, easily take root by layering, and without detaching them from the parent plant; and the individual plants may, by this means, be increased to an almost indefinite extent. Sometimes as much as from 30 to 40 lbs. of tubers are produced by secondary plants obtained from a single stool, of which the branches had been layered into the soil; and the more the latter has been enriched by leaf mould, the larger will be the produce. The method of culture which we have just described is that most commonly practised; but to this there are exceptions, one of which, recommended by the French Horticultural Society, ought to be made known. This method, which is simpler than the ordinary one, and gives also larger returns, was based upon the experiments of MM. Penault and Pissot; but is not always practicable. The tubers are placed in a hotbed under a frame; but, instead of removing the growths in a few days for the purposes of propagation, they are allowed to develop themselves upon the bed. When they are thoroughly established, the largest are chosen and are cut into pieces with at least three leaves attached to each piece, sloping beds composed of the materials of a spent hot-bed, having been previously prepared. Holes are made in these a yard or so apart, a foot in depth, and 16 inches in width; these are filled with old peat soil, the refuse of the potting bench, and in each of them is planted a set. A good watering is then given, and the sets covered with cloches, and shaded until they are rooted. By the end of a month or so the cloches may be taken off, and tubers will have commenced to form upon the young plants. The stems which spread over the surface of the soil root rapidly into it, and produce fresh tubers, but these latter are generally too late to ripen, at least in the climate of Paris, and whilst growing they rob the main crop; their development should, therefore, be prevented by lifting the plants from time to time and breaking off the roots. By thus husbanding the strength of the plant, enormous tubers are obtained from a very limited space, and it is by no means an uncommon thing to gather as much as 20 lbs. from one plant. It is sometimes a matter of surprise that a plant so productive is not more generally cultivated; this is to be attributed to one cause only—the difficulty of preserving the tubers, which are very liable to rot in northern climates, in which they only get half ripened. Under such conditions, much care is necessary to make them last through the winter, that is to say, until planting time has arrived. The tubers must be lifted before frost sets in, for, if even subjected to a white frost, they inevitably rot; a dark, cool, but not cold, cellar is the best place in which to store them. Under these conditions they may be preserved until the end of January, and they can be kept a little longer by storing them in boxes in alternate layers of fine sand or very dry peat, the latter being the best. The boxes having been filled and closed are placed in any dry room where the temperature does not fall below 40° Fahrenheit.

Sweet Potato.



Chinese Yam.

The Chinese Yam.

This was introduced into Europe some five and twenty years ago by M. de Montigny, French consul at Shanghai, and excited at first a large amount of interest, owing to its being thought that it would form a good substitute for the Potato, the extinction of which then seemed inevitable. It did not take long, however, to discover that this could never be the case, inasmuch as its long wide-spreading stems required to be propped up, and its tubers did not keep like those of the Potato. Moreover, the tubers attain a length of from 2 to 3 feet, and, pushing down vertically, are difficult to harvest, except at great expense and labour. The field culture of the plant was, therefore, abandoned, but still it was hoped that it might be utilised in gardens, which it has been to some little extent, as a fancy vegetable, for its culture has never proved profitable to those by whom it has been undertaken. Its greatest fault is the length of the root, the fleshy part of which alone is useable. This renders it almost impossible to dig it up with ordinary cultural implements. The tubers are, moreover, extremely fragile, and frequently break off in the middle, a circumstance which puts an end to all hopes of preserving them from rot. At one time it was hoped that varieties with shorter tubers might be raised from seed, but that hope was never realised. Another fault is that the tubers only become fully developed after they have been in the soil two years, and this is incompatible with the rapid way in which crops are raised in market gardens. This Yam is, therefore, seldom seen outside private gardens. In its favour it may be said that it produces abundantly, and, in this respect, may be even made to excel ordinary kinds of Potatoes; but, in order to obtain such a result, it is necessary that it should be planted closely, say eight or ten plants to the square yard, but the extraction of the tubers really amounts to deep trenching, an operation the cost of which is not likely to be covered by the proceeds of the crop. Culture upon ridges 18 inches or 2 feet high has also been attempted, and it has been found that, though by this means the plants are lifted with much more ease, the produce is less than on level ground; it is also an ascertained fact that the large-sized tubers are only produced where the runners are propped up. The Chinese Yam, although abandoned so far as its tubers are concerned, is frequently grown for forage in certain soils. It will grow anywhere, but is peculiarly adapted for light sandy soils when they are deep and retain moisture. The haulms, which are abundant, make good green food for cattle; the bulbils are excellent food for pigs, and the tubers, which are too deeply embedded in the soil to admit of these animals uprooting them, serve to re-produce the haulms year after year. A few years ago this Yam was cultivated on a large scale for the purpose just mentioned by M. Rémond, on the Landes de Bordeaux, and perhaps this is the use to which it should always be put, it is at least the most profitable, although many believe that notwithstanding enormous returns its cultivation under any circumstances is of no real value. This Yam adapts itself to any soils except those that are cold, damp, and very argillacious. It delights in warm positions, and it is there that the tubers ripen the best. It is propagated with the utmost facility, by means of cuttings made of the stems, by bulbils, and by pieces of the rhizome. Planting the bulbils produces but very small tubers the first year; but if these are set again good crops are produced the following season. Generally the upper and narrower portion of the tuber, which is useless for other purposes, is used as sets; but the crop will be much larger if good sized pieces of the more developed parts are planted. It is then not unusual to see two, and sometimes three, tubers, furnished by a single plant, weighing from 5 to 6 lbs.—in fact, M. Bourgeois, a French cultivator, is said to have raised one that weighed upwards of 14 lbs. When the narrow part alone is used, one tuber only is usually formed. Planting is effected in March or April, according to the situation and climate; the crop is lifted in October, when the yellow colour of the leaves indicate that the tubers are ripe. The extraction of the tubers should be effected with caution, in order that injury to them may be avoided. Exposed for a few days to the air, in a dry or even sunny place, they lose some of their moisture, and may then be stored in a cellar. They keep, however, better in the ground, where it is best to retain a portion of the crop until the following spring, lifting only those required for use during winter.

Dioscorea Decaisneana.

This Yam also came from China, but at a much more recent date than that to which allusion has just been made, and of which it can only be a variety. It has the same appearance, as far as leaves and flowers are concerned, but it is altogether a less robust-growing plant. The greatest difference, however, lies in the tubers, which are round and irregular, and which are produced in abundance close to the surface, rendering their extraction a matter of little difficulty; they are, in fact, scarcely larger than ordinary-sized Potatoes, and in quality are inferior to the Chinese Yam. This Yam produces on the haulm an enormous quantity of bulbils, which do not generally exceed the size of large Peas. Although Decaisne's Yam (the Dioscorea Decaisneana) is never likely to equal the Potato, it is possible that it might be usefully grown as a forage plant, under the same conditions as the Chinese variety. The bulbils sown broadcast, even in comparatively poor soil, would produce haulms fit for cattle food, and the tubers might be advantageously used in other ways.

Decaisne's Yam.

Rosette Colewort.—This is a tender and delicious variety of the Cabbage tribe, and should be largely grown in every garden. The seed should be sown in rich light soil on the north side of a wall about the middle of June, being planted out from time to time as early crops of Peas and other vegetables are cleared off and ground becomes at liberty. They should be planted in lines some 18 inches apart and 12 or 15 inches from plant to plant. The earliest-formed plantations will be ready for cutting about the middle of October or beginning of November, and will be succeeded by others to keep up a supply throughout the winter. They are very mild in flavour, and in quality equal the finest young Cabbages which usually come in about the beginning of May.—P. Grieve.

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

Productiveness of the Alpha Potato.—On May the 13th I planted 9 lbs of this Potato on land situated within half a mile of the sea, and fully exposed during the past cold, wet season. The land on which they were planted received no special preparation. No fertilisers were used, with the exception of a small quantity of vegetable soil. The crop was lifted on September 2nd, and handsomer Potatoes I have never seen, not a single tuber being diseased. The 9 lbs. of seed produced a crop of 401 lbs.—C. J. Barker, *Littlehampton.*

Chick Pea or Garbanzos (Cicer arietinum).—Your querist (see p. 422), who wishes to know where this can be bought, may obtain it at the Deposito de Productos Espanoles, 20, Cranbourn Street, Leicester Square.—J. C.

THE FRUIT GARDEN.

RENEWING FRUIT BORDERS.

There is often a difficulty in obtaining suitable soil for making fruit tree borders, especially for the choicer kinds of fruits usually grown on walls. Some people who happen to be favourably situated on a good fruit-growing soil may do nothing but trench up and well drain the site; but this is calculated to mislead, as there are many places where good fruit cannot be grown without some special preparation being made, and I know no garden, no matter how favourably placed, that will not pay for some extra care being bestowed upon the borders. In making new gardens, the difficulty in procuring soil for special purposes is not so much felt, as the work of preparing the fruit tree borders may generally go on at the same time as the walk making and trenching, and thus the best soil can be secured for the fruit trees without materially impairing the other portions of the garden for vegetable culture. But, in improving or re-modelling old neglected gardens, the case is different; for, in most gardens, especially if neglected, there comes a time, sooner or later, when Peaches, Apricots, and other choice fruits, fail, from growing, perhaps, in an exhausted soil, or, what is equally hurtful, in one that has been too much manured (especially where digging and cropping have been carried on over the roots), and is consequently too full of humus to secure anything like a fruitful habit in any trees growing in it. There are, of course, temporary means that may be adopted to check and reduce this plethoric tendency, such as root-pruning, lifting, re-planting, &c. And if, when this operation is performed, some fresh maiden loam from the top of an old pasture can be worked in among the roots, the trees may again be restored to fruitfulness, and the more liberal the supply of fresh soil the more permanent will be the improvement; in fact, small applications will be of no use. I am assuming, of course, that these lifting operations are performed before the trees are ruined by canker, brought on quite as much by being gorged with strong food (inducing a too luxuriant growth, to be afterwards removed by the knife) as by any other cause. But it often happens that, in renovating old gardens, it is decided to do away with some of the old wall or other trees, and plant young subjects to take their place; but, in doing this, it should never be forgotten that rotation is as important in fruit as in vegetable culture; indeed more so, for in all probability the old fruit trees have occupied the same site for many years, and have robbed the soil of the constituents most suitable for forming that particular kind of fruit. But this rotation of wall fruit culture cannot be secured, in many instances at least, for the necessity of considering the aspect required by some particular kinds of fruits forbids it; the consequence is, that young trees of the same kinds that have been removed are planted on the same sites, with, perhaps, only a barrowful or so of fresh soil put in with them, and then people wonder that the young trees do so badly; and, in addition to all this, the old trees were very likely badly infested with insects, and, perhaps no pains are taken by painting or cleaning the wall, to protect the young trees against this danger. I know places that twenty years ago were famed for their Peach trees—grand old trees, each covering a large extent of wall, and bearing collectively hundreds of dozens of fine fruit annually. But there came a time—perhaps under fresh management, or from some other cause—when in after years the fine old trees dwindled and died and were removed. More than one set of young trees have been planted since then, but either they do not make wood enough to bear well, or they make too much, and of too gross a character, and, consequently, the blossoms produced are weak and imperfect, and do not set. Some people may assign as a cause of this, that the seasons are more adverse, but another and a better one may be found in the fact that our fathers, from having less ornamental gardening to attend to, could devote more time to fruit culture. The main reason, however, why young trees do not do so well as they ought is, I think, because fresh soil is denied them, and little or no preparation is made for them. In planting young trees against old walls, the latter should be painted and cleaned, and then the soil removed bodily and fresh brought in. It is not absolutely necessary to do this all in one year, but square holes could be opened to the concrete or drainage 6 or 8 feet square, the soil taken out and fresh turfy soil brought in, and then under fairly good management, a good result might reasonably be expected, without that constant worry and expense always attending half measures. There is scarcely a place of any extent where, in some out-of-the-way corner, a piece of Grass land might not be spared, 4 inches of the top taken off for garden purposes, and some of the rich soil from the garden carted back, levelled down over the place and sown with Grass seeds. In this way no injury is done, as in the course of a year or two there will be a piece of turf, better and more productive than the old pasture, formed. The truth is that many old sheep pastures, from being closely and constantly nibbled down, do not produce so much as they are capable of doing. Where there is much long Grass it should be mown and cleared before the soil is pared up, as it will only cause heat, and perhaps fungus, to generate in the border. In country places, where green lanes abound, it is often possible to obtain, at almost a nominal cost, a good many loads annually of the parings, scrapings, and clearings of water-courses, &c., which accumulate along the sides of the roads, and which make a good soil for fruit trees, perhaps not much inferior to what is obtained by stripping the top off pasture land, unless we have the liberty to select it where we like, which is a privilege not often granted. In soils that are deficient in lime, it will be an advantage, in making or altering borders for stone fruits, if a proportion —varying from a tenth to a twentieth, but generally nearer the latter—of old mortar-rubbish, or, failing that, a good dressing of chalk or lime, be mixed and worked in with it. Some difference of opinion will probably always exist as to the best depth for making borders for wall trees. This is a question, I believe, that can be best solved on the spot; and should depend, in a great measure, upon the character of the sub-soil. Where the latter is wet and cold, drainage is the first and most important requisite. The bottom of the border should also have a layer of concrete 4 inches thick, at least two-thirds of its width, sloping down to a drain along the front of the border, and then 2 feet of good soil for the trees to grow in will be ample. This only applies to places where the sub-soil is thoroughly bad, but there are many places where the soil is of fair quality on a dry bottom where concreting the bottom will be unnecessary, and where, in fact, it may possibly be injurious from its checking, in a dry season, the ascent of moisture from below. Perhaps there is scarcely anything more injurious to wall trees than the system of constantly cropping over their roots, especially if anything beyond a light spring or summer crop of salading or something of that kind is taken; but by far the best and safest way is never to plant anything within 6 feet of the trunk of the trees. This may appear a small matter on a good fruit-growing soil, where the roots may run down without injuring the health or productiveness of the tree; but its abuse is always fraught with danger on a doubtful or difficult soil.

E. Hobday.

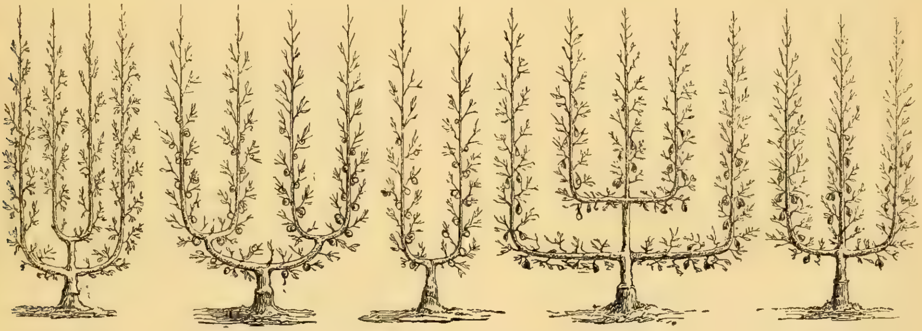


Fig. 3. Fig. 4. Fig. 1. Fig. 5. Fig. 2.

Examples of Vertical Training.

VERTICAL TRAINING OF FRUIT TREES.

Of the many forms in which fruit trees are trained, none perhaps are more generally adopted than the fan-shaped and the horizontal; the former is best adapted for Apricots, Peaches, Plums, and Cherries; the latter for Pears and choice kinds of Apples, and though, if well done, I prefer these two modes to all others on account of their simplicity, and the ease with which they can be carried out, yet, for the sake of saving time, one or two of the several forms of training shown in the annexed illustrations are well worthy of adoption. Fig. 1, the U form, or double cordon, is best suited for a very high wall or fence, and, if the trees are planted 3 feet apart, and the side laterals regularly pinched in, the wall becomes quickly furnished, which is the great merit of the system; another also being the large variety of fruit that can be had from a given space, and the ease with which a failing plant or bad variety can be replaced. The first cost for so many plants is necessarily great, but quicker returns soon make up the deficiency in this respect. The same kind of tree may also be trained obliquely, many preferring this mode to the vertical, on the supposition that the flow of sap is less rapid, and that, consequently, the trees are more disposed to form fruit-buds than they otherwise would be. The next form of tree, fig. 2, is suitable for the same purpose as fig. 1, but can be planted on proportionately lower walls or trellises, and, if deemed advisable, the middle branch may be formed by another variety being grafted on the stock Fig. 3 is well adapted for strained-wire fences, round vegetable quarters, sides of walks, and other boundary lines, and being as easily formed as the old-fashioned espalier, should be adopted in lieu of that mode of training for choice kinds of Apples and the hardier Pears. Strong "maiden" trees, planted now, 5 feet apart, and cut back at once to form the two outer and central branches, will in two years present the appearance represented by the woodcut—that is if summer pinching and tying have been attended to. The next illustration, fig. 4, is one of the handsomest modes of training yet adopted, and being very simple, and therefore readily put into practice, should be carried out largely, even in the most conspicuous positions. The woodcut fully explains all that is wanted as to the best mode of forming the tree, care being required to have all the branches equi-distant. All the above modes of training are calculated to supersede the ordinary espalier, which is often an eye-sore in many otherwise good gardens. Fig. 5, the vertical and horizontal style combined, the Palmette-Verrier of the French, is well suited for the formation of large trees. The first or lowest branches should be carried in a horizontal line to the extreme length which the tree is required to fill, when they should be trained in an upright position, the inner branches being kept at equal distances apart. Of course, any number of shoots may be trained from the central stem, but the same distances apart must be kept between both horizontal and vertical branches. The formation of such a tree is, of course, a work of time, so that the greatest care should be exercised to plant none but well-tested varieties, as to replace such a tree is no easy matter. When a great variety and a long succession of fruit, say Pears, are desired, I would recommend the planting of single cordons. We have here about one hundred of such trees, part of which are trained obliquely to a wall, and the others arched over the central walk of the kitchen garden. Each of these trees produces, on an average, a score of fruit yearly. The following kinds are best for single cordons, viz., Beurré de l'Assomption, Beurré Superfin, Beurré Hardy, Louise Bonne of Jersey, Joséphine de Malines, Beurré Giffard, Winter Nelis, Napoléon, and Duchesse d'Angoulême.

Heckfield. W. WILDSMITH.

NOTES ON THE BEST PEARS.

THE following is a list of Pears that have ripened at Merriott, in Somerset, upon a light sandy loam, during the month of October this year. Only those of first-rate quality are given, and those that have proved remarkably fine are marked with an asterisk. This has been a very unpropitious year for the ripening of hardy fruits, and both size and flavour are much under what they are in the average of years. All the sorts enumerated have been carefully examined, tested, and proved to be true to name.

Abbé de Beaumont.—2nd size, juicy and delicious, with a delicate aroma.
Adam's.—2nd, a rich, sugary, and vinous sort.
Adèle Lancelot.—1st, flesh granulous, with a rich Beurré flavour.
Admirable, Dana's.—2nd, juice abundant, richly and deliciously flavoured; new.
Alexandre Lambré.—2nd, rich and delicious, with a fine honied flavour.
*Alexandrine Douillard.—1st, a noble and delicious fruit.
Amande Double.—1st, a good sort, with a fine Chaumontel flavour.
Amandine.—2nd, very juicy, with a fine savoury flavour.
Amélie le Clerc.—2nd, delicious, sugary, acidulated, and perfumed.
*Amiral.—1st, very juicy, melting, sugary, and with a fine savoury perfume.
,, *Cécile.—2nd, juice very abundant, sugary, and deliciously perfumed.
*Ananas.—2nd, juice excessive, with a most exquisite flavour.
Angélique de Rome.—2nd, juice excessive, sugary, rich, and perfumed.
Angélique Leclerc.—1st, juicy, acidulated, and sugary, with a savoury and delicate aroma.
*Angleterre Nain.—1st, a beautiful and delicious savoury fruit.
Arbre Courbé.—1st, juice abundant, acidulated, sugary, and agreeable.
Archiduc Charles.—1st to 2nd, juice very abundant, sugary, and perfumed.
Arlequin Musqué.—1st, very sugary and deliciously perfumed.
Arthur Bivort.—1st, very juicy, acidulated, and deliciously perfumed.
Athoise.—2nd, melting, juicy, and richly flavoured; new.
*Auguste Jurie.—2nd, a honied, acidulated, and slightly musky sort.
Augustine Lelieur.—1st, ripe from October to November, rich, buttery, and delicate.
Baronne Leroy.—2nd, a delicious and finely-flavoured new Pear.
Baronne de Melo.—1st, juice very abundant, sugary, and acidulated.
*Barry.—1st to 2nd, juice excessive, vinous, sugary, and deliciously perfumed.
Bavay.—2nd, juice abundant, acidulated, sugary, and perfumed.
Belle de Jarnac.—2nd, juice abundant, sugary and highly perfumed.
,, *Moulinoise.—1st, juice, excessive, musky, sugary, and highly flavoured.
,, de Septembre.—1st, juice abundant, sugary, and delicately perfumed.
Bergamote d'Automne.—3rd, very juicy, and with a very savoury perfume.
,, *Bufo.—2nd, juice sugary, acidulated, with a perfume like the Rose.
,, Gansel's.—2nd to 1st, A well-known delicious fruit.
,, Heimbourg.—1st, juice sugary, and delicately perfumed.
,, Leséble.—2nd, juice excessive, sugary, and savoury.
,, Louis.—3rd, Melting, juicy, and delicately perfumed; new.
,, *Lucrative.—1st to 2nd, from a pyramid on the Quince, bad here from a wall.
,, de Millepieds.—2nd, juice excessive, sugary,' perfumed, and savoury.
,, de Strycker.—3rd, juice excessive and deliciously aromatic.
Bezi Goubault.—2nd, juice abundant, sugary, vinous, and aromatic.
Beurré d'Amanlis.—1st, juicy, and in warm seasons perfumed.
,, Antoinette.—2nd, juice abundant, sugary, aromatic, and savoury.
,, *de l'Assomption.—1st, juice abundant, acidulated, sugary, and highly perfumed.
,, Auguste Benoist.—2nd, juice very abundant, sugary, acidulated, and highly perfumed.
,, Bachelier.—1st, juice excessive, vinous, sugary, and delicately savoury.
,, Bailly.—2nd, juice abundant and very delicately perfumed.
,, Baltet Père.—1st, rich, melting, and delicious; a splendid large new Pear.
,, *Bosc.—2nd to 1st, juice excessive, refreshing, and highly perfumed.
,, Burnicq.—2nd, juice very abundant, and deliciously perfumed.
,, du Cercle.—2nd, melting, juice abundant, acidulated, savoury, and delicate.
,, Chatenay.—2nd, juice abundant, perfumed with a high Beurré flavour.
,, Clairgeau.—1st, only first quality, under favourable conditions.
,, Colmar.—2nd to 1st, juice abundant, sugary, with an agreeable acidity.
,, Curtet, or Count de Lamy.—One of the best hardy Pears; will bear and do well as far north as Perthshire, and is juicy and always good.
,, *Delaimnoy.—1st, juice plentiful, with a very exquisite flavour.
,, Dalbret.—2nd, juice very abundant, sugary and acidulated, with a delicious flavour.
,, Delbecq.—2nd, juice sugary, and deliciously aromatic.
,, Derouineau.—3rd, fresh, smooth, delicious, rich, and melting.
,, Diel.—2nd, sometimes first-rate and often second-rate.
,, de Bilbao.—2nd, juice excessive, sugary, and perfumed, often ripe in September.
,, *Dumont.—2nd, juice very abundant, very sugary, and with an exquisite flavour.
Beurré *Dumortier.—2nd, juice abundant, perfumed, and delicious.
,, Durand.—2nd, juice plentiful, sugary, acidulated, and savoury.
,, Duval.—2nd, juice excessive, sugary, delicate, and aromatic.
,, Duvivier.—2nd, juice excessive, delicate and perfumed; comes only third-rate in France; here, in a bad year, exquisite.
,, de Ghélin.—1st, juice abundant, very rich and agreeably perfumed.
,, Gris or Brown Beurré (falsely called Benedictine).—A well-known excellent sort.
,, d'Hardenpont d'Automme.—2nd, melting, juicy, and very aromatic sort.
,, *Hardy.—1st, one of our best large Pears, juice abundant.
,, Jalais.—2nd, vinous, sugary, and perfumed, not very juicy.
,, Jean Van Geert.—1st, melting, juicy, rich, aromatic, and delicate.
,, Kennes.—2nd, deserves extensive cultivation because of its beauty and good quality.
,, Knight.—2nd, juice abundant, rich, and refreshing.
,, Kossuth.—1st, juice excessive, and with a delicious Beurré flavour.
,, Loisel.—1st, juice abundant, vinous, and sugary, with a delicate flavour.
,, *Luizet.—1st, juice excessive, rich, sugary, refreshing, and excellent.
,, Menand.—2nd, melting, buttery, and very agreeable.
,, Moiré.—2nd, juice very abundant, rich, and delicate.
,, Oswego.—3rd, juice very abundant, sugary, and aromatic.
,, Oboziniski.—2nd, melting, rich, and highly perfumed; new.
,, Pauline.—2nd, rich, melting, juicy, honied, and highly perfumed; new.
,, Payen.—2nd, very sugary, and with a fine aroma, very handsome.
,, Preble.—1st, not very juicy but acidulated, and with a rich Beurré flavour.
,, Richelieu.—2nd, melting, juicy, rich, and agreeable; new.
,, Romain.—2nd to 1st, juice abundant, sugary, and highly perfumed.
,, Saint Amand.—2nd, juice very plentiful, and with a fine savoury aroma.
,, *Six.—1st, juice excessive, with an exquisite aroma.
,, Vert de Tournai.—1st, very juicy and sweet, but no aroma.
,, Wetteren.—2nd, sugary and rich, with a delicious flavour.
Bishop's Thumb.—A well-known sort, but only second-rate.
*Bon Roi René.—1st, juice extremely abundant, with an exquisite Beurré flavour.
Bonne Antonine.—1st, juice abundant, refreshing, and delicate.
,, d'Ezée (miscalled Brockworth Park).—1st, juice very abundaut, with an exquisite flavour.
,, *Louise d'Avranches (miscalled Louise Bonne of Jersey).—A well-known delicious Pear.
,, *de Malines.—3rd. to 2nd, delicious, with a delicate perfume.
,, Thérèse.—2nd, juice excessive, sugary, with a savoury perfume.
Bouvier Bourgmestre.—1st, juice abundant, with a delicate flavour.
Braconot.—1st, a fine Pear, but not very juicy, has a fine perfume.
*Breuil Père (du).—2nd, juice excessive, savoury, and delicate.
Brialmont.—2nd, delicious and nicely flavoured; not so in all places.
*Brun (le).—1st, juice abundant, acidulated, and savoury.
Calebasse Delvigne.—2nd, juice excessive, and deliciously perfumed.
,, *Oberdieck.—1st, juice excessive, refreshing, acidulated, and with a delicious aroma.
,, Tougard.—2nd, juice excessive, sugary, delicate, and perfumed.
,, Verte.—2nd, juice plentiful, rich, sugary, and agreeably perfumed.
Cambacérès, 2nd.—Juice very abundant, refreshing, acidulated, and with a delicate aroma.
Canourgues.—2nd, melting, and deliciously perfumed and aromatic.
Capsheaf.—2nd, juice excessive, sugary, acidulated, and delicious.
*Catherine Lambré.—1st, juice excessive, sugary, acidulated, and perfumed.
Chaigneau.—1st, juice excessive, acidulated, sugary, and refreshing.
Chancellor.—1st, exceedingly refreshing, rich, sugary, and aromatic.
*Charles Frederick.—2nd to 1st, delicious, and very agreeable; a fine frui here.
Colmar d'Automne Nouveau.—1st, melting, juicy, and aromatic.
,, Navy.—1st, juicy, savoury, slightly musky, and delicate.
Columbia.—1st, very juicy, sugary, vinous, and delicately perfumed.
Comte de Paris.—1st, juice very abundant, and agreeably perfumed.
Comtesse d'Alost.—1st, very juicy, with a fine savoury aroma.
Cordier.—2nd, very melting, delicious, and slightly aromatic here.
*Court Queue d'Automne.—2nd, a delicately perfumed sort.
Délices de Charles.—2nd, juice abundant, sugary, vinous, and with a delicious aroma.
,, de Froyennes.—3rd, not very juicy, but sugary, aromatic, and delicate.
,, de Hardenpont d'Angers.—2nd, very juicy, melting, and with a delicate aroma.
,, de Jodoigne.—3rd, refreshing and savoury, rich and sugary.
Dix.—1st, very juicy, rich, sugary, vinous, and perfumed.
Dr. Andry.—2nd, juice, plentiful, sugared, and with a delicate musky flavour.
,, Gall.—1st, very juicy, sugary, slightly acid, and aromatic.
,, Lentier.—2nd, juice excessive, very sugary, and highly perfumed.
,, Menière.—1st, juice abundant, perfumed, and very agreeable.
,, Nelis.—3rd, Juice abundant, sugary, and aromatic.
,, Pigeaux.—1st, very juicy, sugary, vinous, slightly acid, and perfumed.
Doyenné (White).—2nd to 1st, very juicy, aromatic, savoury, and delicate.
,, Boussoch.—1st, sugary, vinous, and acidulated; not always first-rate.
,, *Defays.—1st, a splendid and delicious savoury fruit.
,, *Gris.—2nd, juicy, very sugary, vinous, and with a delicious aroma.
,, Robin.—1st, in all its qualities like Doyenné Gris, but larger.
,, de Saumur.—3rd, melting, perfumed, and slightly musky.
,, Sentelet.—3rd, very melting, very juicy, and perfumed.
Duchesse d'Angoulême.—1st, a well-known fine fruit.
,, *William's.—1st, a truly delicious, rich, and aromatic Pear, when well ripened and exposed to the sun and grown on a Quince.
,, Anne.—1st, flesh melting, sugary, acidulated, and delicately perfumed.
,, *de Brabant.—1st, juice abundant, with a savoury aroma.
,, *Helen d'Orléans.—2nd, juice excessive, very sugary, acidulated, flavour exquisite.
,, Précoce.—1st, Juice excessive, acidulated, sugary, and very agreeable—in some places second-rate.
Dupuy Charles.—2nd, juice plentiful, with an exquisite flavour; some places second-rate.
Duvergnies.—1st, juice excessive, sugary, and vinous, with an exquisite flavour.
Edouard Morren.—2nd, juice abundant, sugary, vinous, and delicious.
*Eléonie Bouvier.—2nd, very juicy, sugary, rich and delicately perfumed; sometimes ripe in September.
Emerald.—2nd, Juice excessive, sugary, and with a delicious musky flavour.
Emile d'Heyst.—2nd, very juicy, acidulated, and refreshing.
,, Bivort.—2nd, juice abundant, and deliciously perfumed.

Enfant-Prodigue.—2nd, melting, rich, and delicious.
Espérine.—1st, juicy, sugary, refreshing, perfumed, and delicate.
Eugène des Nouhes.—2nd, juicy, sugary, and delicately perfumed.
*Ferdinand de Lesseps.—2nd, the finest melting Pear I know.
*Figue d'Alençon.—1st, one of the most delicious Pears.
Fondante des Bois.—1st, juicy, rich, sugary, and finely perfumed.
,, de Charneu.—1st, very juicy, rich, vinous, and perfumed.
,, *du Comice.—1st, very melting and deliciously perfumed.
,, de Moulins-Lille.—1st, juice excessive, with an exquisite savoury taste
Frédéric de Wurtemberg.—1st, juice very abundant, rich, savoury, and delicate.
Fulton.—2nd, very juicy, sugary, refreshing, and delicate.
General Bosquet.—1st, juice abundant and delicate.
,, *Lamoricière.—2nd, juicy, delicious, honied, and perfumed.
,, *Todtleben.—1st, a delicious, melting, and highly perfumed sort.
Gratioli de Jersey.—2nd, juicy, melting, aromatic, and well flavoured.
Graslin.—1st, very like Beurré Superfin in form, colour, and quality.
*Grosse Louise.—1st, very juicy, melting, delicate, and perfumed.
Hélène Grégoire.—2nd, juice abundant, sugary, acidulated, and perfumed.
Henriette Bouvier.—2nd, juicy, very rich and sugary, acidulated, and delicate.
Hovey.—1st, melting, sugary, acidulated, juicy, and savoury.
Howell.—2nd, very juicy, rich, delicate, and delicious.
Incomparable.—2nd to 1st, juice abundant, slightly acid, and delicate.
Jacques Chamaret.—2nd, melting, sugary, and perfumed.
Jewess.—2nd, juice very abundant, acidulated, and refreshing.
Jules Bivort.—1st to 2nd, juice abundant, with an exquisite aroma.
*Knight's Monarch.—2nd, one of our most valuable autumn Pears, ripening from October to February.
*Lahérard.—1st, very sugary, melting, and exquisite.
*Léon Rey.—2nd, very delicious, juicy, and exquisitely flavoured.
Lewis.—2nd, first quality here—a variable sort as regards quality.
Loriol de Barny.—2nd, very juicy and sugary, with a pleasant acidity.
Madame Alfred Conin.—2nd, melting, juicy, sugary, and perfumed.
,, André Leroy.—1st, very melting and acidulated.
,, *Appert.—2nd, juice abundant, acidulated, perfumed, and delicate.
,, Baptiste Desportes.—2nd, juice excessive, sugary, and very agreeable.
,, Elisa.—1st, juice most abundant, sugary, rich, and savoury.
Maréchal de la Cour.—1st, a delicious Pear when grown on the Quince.
,, Dillen.—1st, very melting, very sugary, slightly musky, and agreeable.
*Marguerite d'Anjou.—2nd, very melting, very juicy, and deliciously perfumed.
Marie Jalais.—2nd, flesh melting, rich, and sugary; a fine new Pear.
*Marie Louise.—2nd to 1st, well known to be especially fine from a Quince double worked.
Mary (La).—1st, flesh fine, very melting, sugary, and refreshing.
Millot de Nancy.—1st, not very juicy, but rich and delicious.
Monseigneur Affré.—2nd, very melting, rich, delicious, and aromatic.
*Napoleon I.—2nd to 1st, when grown on a wall; well known sort.
*Nouveau Poiteau.—1st, flesh very fine, very melting, very juicy, and very savoury.
*Oken.—3rd to 2nd, flesh melting, fine, sugary, and exquisite.
*Orpheline d'Enghièn.—2nd, very melting, juicy, sugary, and delicately perfumed.
Passe Colmar Musqué.—3rd to 2nd size, sugary, delicate, and agreeable.
Payen.—2nd, flesh fine, melting, acidulated, and perfumed.
*Payenche.—2nd, juice excessive, finely scented, and deliciously aromatic.
*Pengethley.—2nd, melting, rich, highly perfumed, and acidulated.
Pertusati.—3rd to 1st, very variable, juice abundant, and delicious.
Petit-Oin.—3rd, juice excessive, sugary, acidulated, and exquisite.
Pierre Pépin.—1st, melting, very juicy, sugary, acidulated, with a fine perfume.
*Plantaganet.—3rd to 2nd, delicious, rich, sugary, and highly aromatic.
Poiteau.—2nd, juice excessive, acidulated, and agreeably perfumed.
Pratt.—1st, melting and very delicious here; it is not so in all soils.
*Premier Président Métivier.—2nd, very juicy, sugary, and delicious.
Président Parigot.—1st, juice abundant, deliciously and highly flavoured.
,, Royer.—2nd, juicy, abundant, sugary, and agreeably refreshing.
Princesse Marianne.—1st, very melting, rich, sugary, and savoury.
Professeur Barral.—1st, very melting, juicy, sugary, and savoury.
*Puebla.—1st, very melting, very juicy, and deliciously perfumed.
Rameau.—1st, melting, juice excessive, with a delicious aroma.
*Reine des Poires.—3rd, melting, with a very exquisite flavour.
Rivers.—2nd, very melting, juicy, and with a pleasant perfume.
Ronde de Bosquet.—3rd, delicious, juicy, and highly flavoured.
Rousselet St. Vincent.—Melting, with a delicate rich flavour.
*Saint André.—3rd, flesh very fine, very melting, rich, and savoury.
,, George.—1st, flesh melting, rich, and sugary.
,, Germain (Prince's).—Juice excessive, with a sugary and exquisite flavour.
,, Germain du Tilloy.—1st, juicy, sugary, and vinous.
,, *Michel-Archange.—1st, very melting, very juicy, perfumed, and sugary.
Sainte Thérèse.—1st, juicy, rich, and highly perfumed in fine seasons.
Seckle.—3rd, nearly, if not the most delicious of all Pears.
*Serrurier.—1st, melting, rich, sugary, honied, and delicious.
*Sheldon.—2nd, very melting, juice most abundant, sugary, aromatic, and delicate.
Souvenir Favre.—2nd, flesh fine, melting, juicy, acidulated, and perfumed.
,, du Congrès Pomologique, 2nd to 1st.—Melting, juicy, sugary, rich, and delicious.
,, *de Gaëte.—1st, flesh very melting, juice excessive, savoury, and perfumed.
Silvange.—3rd, melting, sweet-scented, very juicy, perfumed, and acidulated.
Sucré de Montluçon.—1st, flesh fine, melting, juicy, and delicately perfumed.
Surpasse Virgalieu.—2nd, juice excessive, acidulated, and savoury.
Théodore Van Mons.—2nd, melting, juicy, sugary, and delicately perfumed.
*Thompson.—2nd, one of the finest autumn Pears, delicious.
*Tongre.—1st, a noble and truly delicious, beautiful fruit.
Urbanistes (des).—2nd, juice excessive, savoury, and perfumed.
Vigne.—3rd, very juicy, perfumed, musky, and delicate.
*Vineuse.—2nd, melting, juicy, sugary, and delicately perfumed.
Vingt-Cinquième Anniversaire de Léopold the First.—1st, melting and savoury, with a fine aroma.
Walter Scott.—2nd, flesh granulous, melting, acidulated, savoury, and perfumed.
Zéphirin Grégoire.—2nd, juicy, sugary, and well flavoured.

The above are all the October Pears that have ripened with me this season. I have yet to try, in a similar manner, the November, December, and later sorts. I have made considerable progress with the November kinds, and trust to be able to send you the list by the first week in December. The early Pears should have preceded the above, but I had not proved them sufficiently as they ripened. The thought only struck me after I had housed all my fruit and arranged them numerically. On looking at them I thought I might never have such another chance of proving them; having before my eyes over 800 sorts, I at once determined to examine every one of them, and the list sent is the result, and contains all the best, or what are considered the superior, sorts. I tested many others, but considered them inferior, and determined to admit only the best. I know, however, that they will not all be best in every kind of soil, and that many of those I have rejected would prove superior to some of those enumerated. I was particularly struck with this when going through the various pomological works which I had to consult; in many cases sorts that were described as only second rate by them, I found in our soil very first rate. There are a goodly number of sorts that come from warm localities that are considered, in these places, as inferior, but which turn out in cooler latitudes to be really excellent. I may, as example, mention the Ribston Pippin, which, in Canada and Scotland, far surpasses the fruit grown in England, and our Ne Plus Ultra Apple is, in warm places in France, only second rate. There is much to be learned regarding the adaptability of certain fruit to certain localities, but it is the work of a life to gain the knowledge desired. J. SCOTT.

HEAVY BUNCHES OF BLACK ALICANTE.

I HAVE much pleasure in furnishing you with the particulars of the manner in which I grew the bunch of Black Alicante Grapes which was shown at Sheffield, and which weighed 9 lbs. The Vine which produced the bunch in question was planted in March, 1871, the plant being then one year old. It was planted along with other varieties in the front of the house inside, the Vines being placed 4 feet 3 inches apart. The house is a lean-to one, with short hip, 38 feet long, 10 feet wide, 10½ feet high, and 3 feet high in front. There are nine Vines in the front, which are intended to be permanent, and on four pillars in the centre are trained eight Vines; on the back wall, which is 8 feet high, are nine Vines, which were left 5 feet long. At pruning-time the Vines on the front were cut down to the top of the front lights, the others on the pillars and back walls being left with long rods, which carried from ten to twelve bunches each. These rods I trained from the pillars to the back wall, and *vice-versa*, by which means I had over 200 bunches in the house the first year after planting, leaving space for the Vines on the front to go up between them. The latter broke strongly, and were allowed to carry two bunches, each from 3 to 4½ lbs. in weight. They were allowed to start naturally without fire-heat, until they were well broken. One Vine, the Madresfield Court, grew 2 feet 8½ inches in one week; the Black Alicante 2 feet 4 inches in the same time, which was the week before the Vines came into flower. At pruning-time they were cut down again to 6 feet, and pruned to one eye. From the Vines on the pillars and back wall I took another young rod up, about 5 feet from the bottom, and when the fruit was cut, and the leaves showed signs of decay, all the previous year's wood was cut out, which gave the young canes more light and air to ripen. In 1873 there were over 300 bunches in the house, the Vines on the front being allowed to carry six and seven bunches each. In 1874 there were 250 bunches, the Black Alicante being allowed to carry six bunches, each of which weighed from 4 to 5 lbs. This year it has carried five bunches, four of which weighed from 3 to 4 lbs., and one bunch 9 lbs. It grew on the first spur from the bottom, where, as a rule, all my heaviest clusters are produced. This season I had over 200 bunches. The main or leading shoot is, as a rule, stopped as soon as the fruit shows itself. Sometimes the two top shoots and a bunch of fruit are allowed to remain. A cane on which there is no fruit is then taken up from a shoot from 15 to 18 inches lower down, and is allowed to grow to the top of the house. When the fruit is cut from the top shoot or shoots, the branches are cut out, which brings the cane so much lower down at pruning time, and as they advance towards the top of the house the Vines on the pillars and back wall are cut away to make room for them; they will be, when cut down again this season, about 10 feet long. They are usually syringed once a day, except when in flower, or when the weather is dull, and the house is closed early in the afternoon until the fruit commences to colour, when syringing is discontinued, and a little front and top air is left on all night. The permanent Vines are stopped at two leaves beyond the fruit. Those on the pillars and back wall, from which we get good useful table fruit for everyday cutting, are stopped at one leaf beyond the clusters, both systems of training and pruning answering the purposes for which they were intended. The Vines are tied to wires, which run along the house lengthwise, and are 18 inches from the glass, which I find to be quite near enough. The roots are fed with fresh horse manure put in tubs and scalded with boiling water. It is then cooled down with cold water to 80° or 85°, in which condition both liquid and manure are spread evenly over the surface of the inside borders. After this they get a good soaking of water at the same temperature, an operation which is repeated three or four times during the growing season, until the fruit begins to colour, after which I give no more water until all the fruit is cut and the Vines are pruned. All loose bark is then removed, and the rods are washed with warm water and soft soap. They are then painted with a mixture of Gishurst compound, soot, lime, and clay; the top soil and old manure are then taken off down to the roots, which then receive a top dressing of fresh loam mixed with old hot-bed manure and dissolved bones. The front of the house is set on pillars, in order to allow the roots to get outside. The borders, which are 10½ feet wide, are sunk below the level of the garden and consist of 3½ feet in depth of soil, those in the inside being 8½ feet in width. The bottoms are of concrete, on the top of which was put a foot of rubble, and in front there is a good drain. The soil was taken from a level piece of ground at the bottom of a very steep old pasture field, and is a good loam, neither light nor heavy. It was stacked for fifteen months before it was used, and was liberally mixed with inch bones, broken oyster shells, lime rubbish from old buildings, and a few loads of horse manure. In the latter part of October, after the outside border has received a good soaking of rain, it is covered up with portable glass frames, which remain on it until the last week in May or the first week in June. They are then removed to another part of the garden, and are used for the production of late Cucumbers and Melons.

Riverdale, Sheffield. D. Abbott.

A BLACKBERRY FARM.

The great Blackberry farm of this part of the country, and, we believe, the chief of all that supply San Francisco with its tons daily during the season, is that of Messrs. Trubody on the line of the Napa Valley railroad, 7 miles above Napa, and about 1½ from Oak Knoll. Here the present owners commenced about ten years ago, and now have one of the largest, if not the largest, Blackberry fields in the state. They have now 12 acres in full bearing, and 3 acres more put out last year that will bear the next season. The Vines are planted 8 feet apart, which would give about 700 to the acre, or, say a total of 10,500 on the 15 acres. They are staked and trained up about 6 feet high. The varieties are principally Lawton, which is the most highly esteemed of all, being the largest, firmest, best flavoured, and most marketable; also, Early Wilson, Missouri Mammoth, and Dorchester. The vines bear the second year, and they last, it is hardly known how long, but Messrs. Trubody think that they should be renewed about once in ten years. They have Vines twelve years old that are as hale and vigorous as ever. The average yield of an acre in full bearing is 4 tons during the season. The ground required is a rich deposit, or made land. There is no irrigation used by the Messrs. Trubody, their berries being sweeter and better without such treatment. The effect of irrigation is to enlarge and harden the white heart inside the berry until it becomes so hard that the pulpy exterior will slip off in eating; also to reduce the percentage of sugar some 20 or 25 per cent. Ordinary dry-raised Blackberries contain from 5 to 6 per cent. of sugar; irrigated only from 4 to 5. It is possible that in drier ground they would have to be irrigated, but in Messrs. Trubody's farm the water is only 3 to 4 feet below the surface, except in the dry season. The pickers are Chinamen, who not only work expeditiously but cheaply, a thing to be desired when the low price at which the berries are sent to market is taken into account. The number employed varies from six to forty-five, according to the stages of the season, averaging over forty for about three weeks. The season lasts about two months, and the expense of picking, shipping, commission, &c., averages £20 per day for three weeks of the busiest time. The Chinamen pick about 80 lbs. a day per man, or sixteen of the little 5 lb. drawers. They each have a little frame called a "shade," in which the drawer is carried while picking. This keeps the sun off the berries, when picked, and also prevents leaves, &c., from falling in off the bushes. If the sun be allowed to shine long on picked berries, it turns them a reddish colour and impairs their flavour, thereby, of course, injuring them for market, though we believe they regain their colour in cooking. The greatest quantity picked any one day was 4,300 lbs. for wine making. The vines are picked eight times each season. The berries as fast as picked are brought in the little drawers and deposited on racks in a kind of store-house, where they have every facility for coolness and ventilation, awaiting shipment. The drawers are in turn put into chests holding twelve and twenty each, and shipped twice a day by morning and evening train to San Francisco and other markets.

Hardy Grapes.—I have fruited the following collection of hardy Grapes this autumn in a glass-covered wall, without any artificial heat:—Grove-end Sweetwater ripened at the end of August; but, from the thinness of its skin and sugary flavour, the flies and wasps injured the bunches very much. Royal Muscadine—the Chasselas Fontainebleau of the French—ripened at the end of September, and was excellent in flavour and colour; it is certainly the very best hardy early white Grape. Pearson's Ferdinand de Lesseps ripened with me about the same time, and its peculiar Frontignan flavour was richer than when forced in the hothouse. Buckland's Sweetwater and the Esperione, a black early Grape, ripened in the middle of October, and were finely coloured and better flavoured than when forced early in the houses. Welbeck Black Tripoli, a variety of the Hamburgh, ripened perfectly at the end of October, as well as the Trentham Black.—William Tillery, *Welbeck.*

Pears v. Peaches.—Many Peach growers in the great Peach region Delaware, are a good deal disheartened at the low prices at which their crop of Peaches are selling. The "Wilmington Commercial" says:—A good crop can be raised only about once in three years, and when the large crop does come, the market is glutted from the beginning to the end of the season; the prices realised do not, in many cases pay freight and commission, and as we write a quarter of a million baskets are rotting in the orchards, because it would not pay to send them to market. Now why do not our growers root out some of the Peach trees and plant Pears? This fruit will certainly thrive in Delaware soil, and yield large returns to the growers, and the market can be so extended that a "glut" would be unknown. The change at least is worth a trial.

A Purple-leaved Peach Tree.—At the last Versailles Horticultural exhibition, a new Peach tree, having purple leaves, was exhibited for the first time. According to a writer in the "Revue Horticole," who saw and tasted the fruit, it is of average size, downy, somewhat irregular in shape, and indented. The flesh is exceedingly tenacious, pale yellow in colour, and appears to combine the flavour of the Apricot with that of the Peach. If the fruit cannot be called superior, the tree is at least valuable, from an ornamental point of view.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Large Triomphe de Jodoigne Pears.—This fine but little-grown Pear has been grown to over 2½ lbs. in weight in Mr. Leigh's garden at Barham Court during the present season.

Gathering Apples.—About this season we invariably hear people complain that their Apples are keeping badly; considering, however, how they are handled at gathering time, the wonder is any keep at all. If they were handled like eggs there would, I imagine, be less cause for complaint as to the keeping qualities of good really late sorts.—J. Groom, *Henham.*

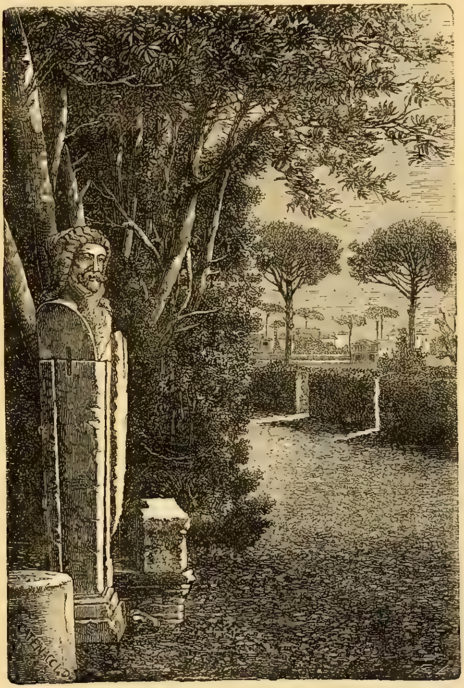
Cracked and Blackened Pears.—I have had several varieties of Pears attacked this year with the Fungus called Helmithosporum pyrorum, which cracks and blackens them. These cracked Pears, however, ripen the first, and with me are juicier and better flavoured than sound fruit. The soil of the kitchen garden here is very strong and retentive of moisture, and in very wet summers and autumns, like the present, some of the fruits of different sorts of Pears are always attacked with the Fungus just named. This only applies to the fruit grown on standards and bushes, for wall fruit is generally free from it.—William Tillery, *Welbeck.*

Fruit Awards.—If prizes are offered for certain specified varieties of fruits, and if, through not knowing the kinds in question, they are awarded to others, an injustice is committed, though inadvertently; and this happened at South Kensington the other day. Nevertheless, such Apples as the Wellington, Hawthornden, Ribston, Quarrenden, King of the Pippins, &c., ought to be known, and should receive the awards offered for them. The same may be said of such Pears as Winter Nelis, Beurré Diel, St. Germain's, Louise Bonne of Jersey, &c., and yet some of these were mistaken for other sorts, and thereby lost the prizes which they should have received.—E. Bennett, *Rabley.*

FLOORING IN GLASSHOUSES.

Mr. Muir very strongly recommends encaustic tiles for conservatory floors (see p. 384). I think he should have also said something as to the choice of suitable colours. I have in my mind a conservatory I saw some years ago, the floor of which was formed of these tiles; the pattern was very artistic, and the colours (of which I think there were half a dozen) were very bright. On entering the house this floor so filled the eye that the flowers could not be justly appreciated. I should say it would be impossible to make a good arrangement of plants with such a floor. Anyone wanting an illustration on a small scale should take a walk through the fashionable parts of some large town and notice the window-boxes. I will name two kinds for comparison, those made of highly coloured earthenware and virgin cork. It will not take him long to decide where flowering plants show themselves to the best advantage. To my mind flowers and encaustic tiles do not go well together in the conservatory, and even the plainer patterns are too expensive for plant-houses generally. For conservatory floors Yorkshire stone is the best material. Certainly it is liable to get stained by persons treading upon fallen flowers, but with proper attention even this may be avoided. I do not think there can be any better material for plant-houses than polished slabs of slate. They are easily cleaned, and have a neat appearance. I may here mention a kind of tile which is used in some of the houses at Osmaston Manor; and, which I consider very suitable for houses that have to be frequently damped down. To the best of my recollection it is about 9 inches square, and made of what is now called terro-metallic ware. It is nearly black, very hard, and does not get green. Its chief pecularity is in the edges being bevelled instead of square. When placed together these bevelled edges form V-shaped channels about an inch wide at the top, which if stopped at the ends serve to hold water for evaporation, at the same time the surface is dry enough to walk upon without inconvenience. The floor is rather troublesome to clean, owing to the channels running at right angles. If I were going to lay such a floor, I should order the tiles to be made with only two sides bevelled, and lay them so that the channels would run parallel with the walls of the house, which would be the most convenient way of working the brush. To those who are about to lay down encaustic tiles I would say—let none but experienced men be entrusted with the work. It must be done expeditiously, and with great care, for if the superfluous cement is allowed to harden on the surface, no amount of scrubbing will remove it.

T. S.


View in the Medici Gardens.

THE MEDICI GARDEN.

The accompanying illustration represents a view in the Medici Gardens, Rome, one of a numerous type of gardens, the main elements of which are clipped walls of green, formal walks, numerous statues, and the ever-present Stone Pine. It is difficult to imagine anything more monotonous or uninteresting than the type of garden represented by this. It looks much more interesting in the picture than it does in reality. In old times, however, this type of garden was a pleasing contrast to the wild nature around, and the very trimness and formality surprised and pleased the visitor. Nowadays, we seek the satisfying charms of quiet, natural beauty of disposition and variety of form and kind. Combined, these give us what is far more precious than anything to be seen in such gardens as those of the Medici.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Late Grapes.—These are always much prized, and some should, if possible, be kept till the end of the year, or even longer, if the kinds grown are suitable for the purpose. With Hamburghs, or similar thin-skinned sorts, there is more difficulty than with the thick-skinned kinds, such as Lady Downes or Alicante; the latter is best for amateurs, as it is a stronger constitutioned variety than Lady Downes, and much easier to manage during the summer months, inasmuch as Lady Downes is apt to scald in both leaf and berry. Where the Alicante is grown with the intention of keeping it hanging late upon the Vines, the bunches, which are naturally broad at the shoulder, should be well thinned out at the first, and they should be examined every week from the present time until they are cut, with the view of removing decayed berries. This attention is the more needful if, as often happens, plants are grown in the house. Where such is the case, all watering should be done early in the morning, so as to admit of the house becoming dry before night, and no more water than is absolutely necessary should be used. The usual course recommended is to heat the pipes two or three times a week during damp weather; but this is not nearly so effective as keeping a little warmth on regularly both day and night. Only a little heat must be used, or it will both excite the plants into unwonted growth, and cause the Grapes to shrivel. All that is required is just sufficient to cause a circulation in the atmosphere of the house, and to admit of a little air being left on day and night, both at front and top; very little, however (an inch, say, at each opening), will be sufficient to maintain the atmosphere in a condition to preserve the Grapes, and also benefit the plants.

Lifting and Storing Dahlia Roots.—In many parts of the country Dahlias have escaped being cut down by frost much longer this autumn than usual, and there is often a disposition to allow them to remain undisturbed as long as they continue to flower; but, as soon as the tops are destroyed by frost, the roots should at once be taken up. If, on the other hand, they are allowed to remain for a time in the ground the result is the latent eyes that exist round the base of the stems, and intended to form shoots for the coming season, are at once started into growth. To such an extent will this sometimes occur that no eyes remain from which the plant can make growth in the spring, although the tubers may be quite sound. These dormant buds are very often destroyed by the following bad practice. When the tops are cut off at the usual distance of 8 or 10 inches above the ground, and the roots lifted and placed with the stems upwards, the sap continues to ascend, and oozes out where the tops have been severed, running down and keeping the remaining portion of the stem wet, which causes it to rot and turn mouldy right down to the bottom, and kills the buds at the base. To prevent this, the roots, when taken up, should always, for a time, be placed top downwards on a shelf in an empty Vinery or dry shed, where they will be beyond the reach of frost, or they may be hung up on nails in a similar position against a wall in any dry airy building, the object being to get them dry without delay, after which they may be stowed away in any place where there is no possibility of their getting frozen, or of the roots becoming too dry and shrivelled, to prevent which they can be covered over with dry Fern or straw. At the time of taking them up, see that the names are legibly written on the labels, which should be secured to the stems with wire, as twine or bast, when used for this purpose, often rots during the winter.

Herbaceous Borders.—Most of the plants here will shortly be in a condition to have their tops removed; this is necessary for appearance sake, but is not justifiable upon any other grounds. The tops, although they may have no vitality in them, afford protection to the roots and dormant buds that lie thickly about the crown just under the soil. When the old flower-shoots are removed, the crowns sometimes suffer in two ways, first, from the absence of shelter that would be afforded were the tops allowed to remain, and also from another and often more serious cause. In many cases the stems are hollow, and, when these are cut at an inch or two above the ground, they get filled with water down to the bottom, right to the very point where the buds are formed that are intended for the ensuing year's growth. To inflict as little injury as possible in this manner care should be taken in the first place never to remove the tops from a plant whilst there is any vitality in them; for, until dead, they must impart strength to the roots, and, when in a condition for removal, they should never be cut so close as is generally practised. Instead of severing them near the surface leave them 8 or 10 inches high; so treated they will not be an eyesore. In the case of anything that is at all tender a little dry Fern or litter may, with advantage, be placed round and over the crowns. All weeds should be removed by hand and the ground raked; but, in places where there are yet any leaves to fall from deciduous trees, anything in the shape of mulching over the entire surface should be deferred until all the leaves have fallen and can be cleared off; as, if the mulching is put on whilst the leaves are yet falling, it is afterwards a difficult matter to clear them off. In far the greater number of gardens many more bulbous plants than are usually seen might, with advantage, be grown. Their distinct forms and pretty colours are an interesting and pleasing feature during the spring months. Nothing, in their way, can be more beautiful than the varieties of Erythronium (Dog's-tooth Violets); those who intend growing these should procure E. giganteum or grandiflorum, a fine red variety; E. alba major, a very large-flowered pure white, much superior to the old white variety; E. americanum lanceolatum, yellow, a very distinct and desirable kind; E. atro-roseum, a deep rose-coloured kind; E. purpureum majus, very large mauve-purple flowers; E. giganteum album, splendid white, bearing eight or ten flowers on a stalk; E. giganteum flavum, fine golden-yellow. Either grown together in a bed or in good sized patches, at the front of the herbaceous border, these plants have a charming effect, not alone for the beauty of their flowers, but their handsome mottled leaves are very attractive; they should be planted without delay. Hardy kinds of Ranunculus, such as the Turban varieties, may now be planted in situations where the soil is dry; but the more valuable sorts should not, except in very favourable positions, be planted yet, as they are apt to suffer from wet by lying too long in the ground. Where a succession of handsome hardy flowers is held in estimation, single Anemones should be largely grown, the plants, from their compact habit and the continuous brilliant coloured blooms which they produce being almost without a rival; the single scarlet variety is most effective, commencing to flower, in a mild season, during the first month in the year. Anemones like a moderately rich, free soil, and if grown in clumps in the herbaceous border should occupy a front position, on account of their dwarf habit of growth. Such subjects as Sweet Williams, and fine varieties of Foxglove, that were sown in the early part of the season and afterwards transferred into nursery-beds, may, if the weather keeps open, and when grown in soil of such a nature that they will move with good balls of earth, be now planted in the borders where they are to flower; but, when these conditions do not exist, or the plants are small and late, it is better to defer this work until spring, or they might suffer if a very hard winter was to set in early. A very pleasing effect may be produced in spring by planting large masses of Snowdrops, Crocuses, and Daffodils, in the Grass in distant parts of lawns, in Grass plots in out of the way corners, or in front of shrubbery borders, and under trees. These may be either planted in patches or dispersed 6 or 8 inches apart over the available ground. The places chosen for plants of this kind should not be in too close proximity to the dwelling, as the tops ought not to be removed in the spring until after they are dead; which, in a very prominent position, would be unsightly. Where any of the above plants are to be so arranged, they should be planted immediately. Crocuses and Snowdrops may be put in by making holes with an ordinary dibber, covering the bulbs with a little loose soil; for Daffodils, holes must be made with a spade, but, whichever way the planting is effected, it can with ordinary care be done even on Grass, without having an unsightly appearance.

Peas.—Amateurs who reside in the southern or western parts of the kingdom, or in any favourable locality, not far from the coast, where severe and protracted frost is not usual, and where, in addition, the soil is of a light nature, may now sow a few early Peas for the chance of having some a little more forward in the season than by later sowing. Choose a situation sheltered from the north and east winds, with the ground, if possible, sloping to the south. Dig it well, and mark out the rows 4 feet apart; in opening the ground for sowing, do not go above 2 inches in depth, for, if the Peas are put in deep at this season they are liable to rot. Sow considerably thicker than would be required in the spring to make up for such as may not vegetate, or that suffer from the attacks of slugs; cover with the soil in the usual way, and over the top put a couple of inches of fine coal ashes. This will not only act as a protection from frost, but also prevent slugs from penetrating the ground and devouring the young sprouts as they are pushing up through the soil. On ground that is much infested with slugs, there is great difficulty in keeping these early-sown Peas from being eaten, and if, in addition, the soil is of a wet retentive nature, it is better to defer sowing until after the commencement of the new year.

Flower Garden and Pleasure Grounds.

At no season of the year is the flower garden altogether devoid of interest and attraction, unless it may be so considered when the soil is frost-bound or hidden from view by a mantle of snow. At the present time the borders are, to some extent, enlivened by the blooms of the Sternbergia lutea, the autumn Crocus, Colchicum autumnale, Violets, and late Chrysanthemums, while the Winter Aconite and the Christmas Rose are just about to unfold their blooms. The latter plant, and its improved variety—Helleborus niger maximus—are exceedingly interesting and useful plants, producing their very pretty blooms at a season of the year when flowers are much in request, although generally scarce. With very little trouble, however, Christmas Roses may be induced to bloom throughout the entire winter, or from the beginning of December to the middle of March, if the weather proves to be comparatively mild, whilst even during the most inclement weather their flowers may be readily obtained if they are allowed the shelter of a frame or hand-glass, and the plants should be so placed upon the herbaceous border that this protection may be readily applied to them; that is, the plants should be disposed in groups or as isolated specimens of such dimensions that a one or two-light frame, or hand-glass with a moveable top, may just cover them. When the plants are thus protected, air should be admitted to them at all times when the weather is mild, and during very severe frost a mat may be placed upon the frame or hand-glass. The culture, however, of this plant appears to be but little attended to, and an idea prevails to the effect that the plant is somewhat impatient of interference or transplantation. I have not, however, found this to be the case; but, on the contrary, have cut with a sharp spade large plants into twelve or more pieces, every one of which grew and flowered even during the next succeeding winter, but, of course, more profusely during those which followed, when the plants had increased in size and were well established. The transplanting and division of large plants should be effected about the end of March or beginning of April, and they will be found to succeed well in a light and somewhat rich soil. The leaves of many kinds of park and ornamental trees appear this season to be retained longer than is usually the case, a circumstance for which the moist summer and comparatively sunless autumn may, to some extent, account; and, until the leaves are all fallen, it is seldom possible to keep grounds in good order; they should all, however, be cleared off as soon as they are fairly down, when, in many instances, it may be found necessary to pass the mowing machine once more over the principal lawns and Grass belts, or, should the turf be found too soft to bear the tread of a horse, hand machines or the scythe may be brought into use. Decaying leaves must now be removed from Auriculas, and other choice Alpine plants in pits or frames, as soon as they are perceived, water being given very sparingly, and only when really required, while air should be admitted freely whenever the state of the weather will permit this to be done. Bedding plants, such as Pelargoniums, Verbenas, &c., which may still occupy cold pits, should receive, in all respects, similar treatment to that which has been recommended for Alpine plants. But the sooner such plants can be removed into structures where artificial heat can be occasionally applied, the better. The more tender species of bedding plants, such as the Coleuses, Alternantheras, and others—now so much used in the carpet style of bedding—must be wintered in a heated structure of some kind, where the temperature should not be allowed to fall much below 55°. For some time to come, however, bedding plants of all sorts should be kept as quiet as is consistent with their safety; while the increase of stock by propagation should not generally be attempted until the days begin to increase in length. But, in the case of newly-introduced plants, or, wherever there may be found to be a considerable deficiency in the necessary amount of stock of any desirable species, cuttings should be inserted as fast as they can be produced, without reference to the season; and, to facilitate the production of cuttings, the plants should be placed near the glass, and in the warmest part of the structure.—P. Grieve, *Culford, Bury St. Edmunds.*

Pot Roses.

Plants that have been placed in houses to keep up a supply of cut flowers, should be kept in a much higher temperature than those not used for forcing, and during dull weather the syringe should be used very sparingly, as the buds will not require much moisture to assist them in opening at this damp sunless season of the year. Those plants that were placed in houses in September or the beginning of October will be in flower during this month, and the blooms will be found very useful for cutting for decorative purposes. The plants should be occasionally looked over, in order to detect mildew or green fly on the foliage or flower buds. With pot Roses success much depends on the cleanliness of the plants. Plants, pruned in October and placed in bottom-heat, will have made a good start by this time, and should be carefully examined, and the shoots that require it tied down. Should green fly show itself fumigate very slightly, as the tender foliage of forced Roses will not bear it at any great strength. In fumigating a Rose-house, a dry heat and no moisture which will cause steam when the operation is about to take place, are alone required; and the plants should receive a thorough washing with the syringe the following morning. It is advisable, if green fly is not thoroughly destroyed by the first fumigation, to repeat the operation after an interval of about two days. More plants should now be placed in heat to keep up a succession of bloom; they should be dressed all over with a mixture of Gishurst compound and soot water before they are placed in the house, in order that any insects that may have infested the plants in a dormant state may be exterminated; but the mixture must not be too strong, as it often injures the buds. In taking in Roses to force, ascertain whether the drainage is good, and if this is not the case, remove the old and replace it with fresh material. Also see that all pots are perfectly free from worms. These prove a very great pest to pot Roses, stopping the drainage, as well as making the soil in a puddled state. The plants thus become sickly, and fail to produce good flowers. Pot Roses require watering freely, using liquid manure occasionally—Standen's manure, or guano, being considered the best for them; but if these cannot be obtained, use sheep or cow dung mixed with a little soot in the water. Tie down all plants, to induce the buds to break with regularity. When they are placed in the houses my plan is to tie a string round underneath the rim of the pots, and then draw the shoots down to the string, with a piece of matting or thin twine. I find that I can thus draw a plant into any shape, and that the buds break more regularly than if allowed to grow upright, when the top bud alone pushes, leaving the bottom unfurnished. The Tea varieties break much more freely than the Hybrid Perpetual varieties, and make growth and flower much earlier.—H. G.

Indoor Fruit Department.

Vines.—Placing bunches of Grapes in bottles of water to preserve them during the winter is a system often practised, and under certain circumstances it possesses many advantages. In Vineries full of plants, and where there are many Grapes hanging, it is impossible to keep the atmosphere sufficiently dry to prevent the fruit from rotting, and in such cases it is much better to cut the fruit and bottle it than to let it spoil on the Vines. Many old Vineries, too, are far from being waterproof, and consequently ill adapted for keeping Grapes. Moreover, where there are only, as often happens, a few dozen pounds of fruit hanging in a large house, from which it would take a great deal of firing to keep out frost and damp for any length of time, cutting and bottling may be profitably resorted to. In cutting bunches for this purpose from 4 to 6 inches of the shoot between the main stem and the bunch should be removed along with the fruit. This piece of wood is placed in the mouth of the bottle, which may either be laid down in a slanting direction, so as to allow the bunch to hang over the edge of the shelf or whatever else may be best. Pint bottles suit most bunches, and they need not be quite filled with water; on the contrary, if the end of the shoot is covered, that is sufficient. In order to prevent too much water from passing through the wood, the cut end may be half-charred before it is placed in the water. A fruit room in which Apples and Pears keep well is a good place in which to put Grapes bottled in this way. The atmosphere about them should be kept dry, and the temperature should not be allowed to fall below 40°. They should also have air and plenty of light on all favourable occasions. Under this treatment few berries will decay, and their flavour will not deteriorate much. Grapes may also be kept by cutting the bunches as if for bottling, and running the cut end of the wood into a fresh Potato. Thus circumstanced, they may be hung up in a room like that to which reference has just been made. This plan is, however, not so good as bottling. When the bunches are all cut for these purposes, the Vines should be pruned at once, and all cleaning required should be done. Grapes need not be cut merely for the purpose of relieving the Vines which do not suffer through fruit hanging on them, even until the buds begin to swell the following season.

Pines.—As this is the season when crowns of Charlotte Rothschild, Smooth-leaved Cayennes, Black Jamaica, and other valuable winter-fruiting sorts can be had in quantity, they should be carefully looked after, and potted, if possible, before the leaves begin to shrivel. They require good treatment, in order to induce them to root freely now, and there will not be sufficient warmth for them in any of the beds in which other plants are plunged; but, in many instances, there are warm corners near the boiler, in which, with the addition of plenty of plunging material, a bottom-heat of 90° can be maintained, and such circumstances suit them admirably. The atmospheric temperature need not exceed 70°, and they should be gently syringed over head daily until roots are formed. The pots in which they are placed need not be larger than 5-inch ones, inasmuch as they root quicker, and make finer plants in this size than when three or four of them are put into an 8-inch pot.—J. Muir.

TREES AND SHRUBS.

PLANTING ON CHALK SOILS.

The relation of a flora to the geological formation upon which it flourishes is a very interesting matter botanically, and it involves many important questions for the consideration of the practical planter. I am not acquainted with any comprehensive treatise on this subject—any work which will say to a gardener, "If you are on such and such a soil, you may plant this and not that; if your soil is of one kind, here is a list of plants that will grow; but if it is of that other kind these same plants will fail you." Many must have found the want of such advice when laying out grounds for ornamental planting. It is a difficulty not easily to be met by one author, or one observer, for very few men have opportunities of testing the suitableness of trees and shrubs in a variety of geological formations. Most planters are confined to one locality and one formation. But if competent persons, who are laying out and planting ornamental grounds in different parts of the country, on various soils and under different physical conditions, would contribute their experiences, a collection of evidence might be obtained of the highest value to those who hereafter are engaged in the pleasant, but now somewhat anxious, occupation of selecting the trees and shrubs which are to shelter and adorn some future home. It is sadly disappointing to make mistakes in such selection, and to find, after two or three seasons have passed, that the plants and the soil are at enmity, and that, where one had hoped to see beauty and shelter, all still remains barren and bleak. I have made such mistakes myself, and have, I am sorry to have to confess, suffered accordingly. In planting in untried ground there is one somewhat trustworthy source of aid—ascertain the orders and genera of wild plants which flourish best in the immediate neighbourhood, and then select ornamental species as nearly allied to them as may be. Not that this will be a certain and infallible guide, for I have found, as I shall by-and-bye show, that in some instances different species of the same genera are very unequally suited to the same soil. This I have noticed particularly the case with the Coniferæ on the chalk. Still it is some guide. The true chalk districts of England do not vary much in their physical characters—large, bold, undulating hills of great breadth and extent, with open valleys, all much exposed to the action of the wind. Here and there large massive undulations jut out upon the plateau of a lower formation in the form of escarpments, whose exposure to the storm is complete, and where the action of the wind upon vegetation is without mitigation. The soil of these chalk hills and downs is very uniform, a thin crust of brown loam immediately overlying the pure chalk. Here and there on the highest hills and most elevated flats are a few patches of plastic clay, forming the basins of those perennial ponds which one sees on the South Downs, and which no drought can destroy. These clay patches are very valuable and important in many ways. The chalk and the loam are very definite and sharp in the line where they meet; there is no mixing up, no transition from one to the other; but the line of union is often irregular, for in a section it is sometimes seen that the loam will be only 5 or 6 inches deep at one spot and 2 or 3 feet at another close by. Chalk consists almost entirely of carbonate of lime with some silica and a trace of alumina. It, therefore, very imperfectly supplies the mineral elements necessary for vegetable growth. The loam on chalk consists of carbonate of lime, some clay, sand, and a considerable quantity of decayed vegetable matter. There is also a notable amount of animal matter upon the surface of the chalk downs derived from insects and mollusca. The remains of the former are easily detected with the microscope in the washed soil, and the multitudes of snails that annually perish and give their bodies to the earth are attested by the countless empty shells that cover the surface. Moreover, the chalk downs of this country have been sheepwalks for a very long series of years, and this has been another source of supply both of ammonia and phosphates. The loam upon the chalk is, therefore, a fair supporter of vegetable life. Previous to planting trees in blocks or masses it is absolutely necessary to trench the land, and this upon chalk soils is a matter in which very serious mistakes may be made, as I know to my cost. There is a prevailing idea that trees require a deep soil for their growth; but this is an entire fallacy as regards the greater proportion of them. That trees will prosper more in a good deep soil than in a similar soil that is superficial is no doubt true; but a thin rich soil is better than a deep poor one; and the most fatal mistake that can be made in trenching land preparatory to planting is to throw up a barren sub-soil and bury the better elements beneath it. This is particularly the case on the chalk lands. That trees of very large size will grow upon the very thin soil may be rendered evident to anyone who travels through the chalk cuttings on our southern railways. In many places the soil is not 6 inches deep above the chalk, and yet splendid trees, especially Beeches, are seen clothing the hills.

Trenching.

In trenching chalk land, such as I am referring to, the trench should be carried to the bottom of the loam, but no further. However superficial the top soil may be, even 3 or 4 inches, it alone should be turned over in the trench, and not a grain of chalk should be raised. The chalk may be broken up into large lumps with a pickaxe, and left at the bottom of the trench, but there it should remain. Through a misunderstanding on the part of the foreman of the gang of trenchers, a mistake was made, which has been most disastrous to me. The first trenching on my ground was for a belt of trees and shrubs. Irrespectively of the soil at the particular locality, the foreman commenced by trenching 2 feet deep, the top-soil being only 8 or 10 inches thick at that part. When I first inspected progress, to my dismay I found 60 yards of the belt of land as white as snow; the whole of the loam had been buried and covered over with more than a foot of fine powdered chalk! I remonstrated with my man, but he had a ready answer—"Oh, sir, it is just as it should be; the roots will go down and find the soil below." And this is the common fallacy—that roots inevitably go down for their food. So wedded was the man to his sub-soiling ideas, that he might, for aught I know, have received his cultural education from Mr. Smith, of Woolston! However, I put a peremptory stop to the sub-soil process, and no more chalk was brought to light; the loam was turned over in the trench for the remaining 600 yards of the belt, and for sundry clumps and corners, however thin the crust might be in some places, and the result of the subsequent planting and growth or failure has confirmed my judgment. The 60 yards of sub-soiled land has been a region of vegetable sickness, of death and barrenness; while the whole of the rest of my plantings has been a complete success. If any of your readers are going to plant upon chalk land during the coming winter, let me advise them to trench the land at once, so as to expose the soil to the weather till planting time, but remember—Don't throw up the chalk! Let me enumerate—1. The trees and shrubs that have best succeeded on chalk land; 2. Those that grew fairly well, and may be tried; and, 3. Those that failed, and should be avoided.

I. Trees that have best succeeded.

I would, however, first point out that there are certain disturbing elements which may render deductions inaccurate as regards the suitability of trees to particular soils. Impatience of transplantation is a constitutional characteristic of some trees, and many will die, or long remain in ill-health, from this cause, that are in no way inimical to the soil in which they are planted. Time and repeated plantings will correct this source of error. Frost may at some particular spots destroy young trees, and lead to a supposition that the soil does not suit them; but wind, the greatest enemy to young trees, is more likely to lead to such a mistake. Many trees might be thus condemned after trial in exposed situations, or as specimens, which, if planted on the very same soil surrounded by others acting as nurses, or otherwise protected, would be found to flourish. In the following enumeration I have endeavoured to avoid these sources of error, or to point them out in reference to particular trees. It is fair also to mention that in many cases the number of certain species and varieties has been small. Perhaps if planted in large numbers my inferences might have been modified.

Trees that have Thoroughly Flourished on my Chalk Soil.

CONIFERÆ.

Abies excelsa (common Spruce)
Cedrus atlantica
Deodara
Cupressus Lawsoniana
L. erecta viridis
macrocarpa (? species)
Juniperus chinensis (male)
communis hibernica
virginiana
Sabina
Larix europæa
Larix leptolepis
Picea magnifica
nobilis
Nordmanniana
Pinsapo
Pinus austriaca
excelsa
Laricio
Pinaster
sylvestris
Torreyana
Retinospora ericoides
filicoides
Salisburia adiantifolia
Taxus baccata
b. fastigiata
Thuja Lobbii
occidentalis
orientalis
o. aurea
o. semper-aurea
tatarica
Warreana
Thujopsis borealis
Wellingtonia gigantea

DECIDUOUS TREES.

Acer colchicum rubrum
dasycarpum
Negundo
platanoides
Pseudo- platanus
rubrum
saccharinum
striatum
tataricum
Æsculus Hippocastanum
H. flore-pleno
rubicunda
Alnus glutinosa
g. laciniata
g. l. imperialis
Amelanchier Botryapium
Amygdalus communis
c. macrocarpa
Betula alba
Caragana arborescens
a. pendula
*Altagana
*Chamlagu
*spinosa
*microphylla
*arenaria
Castanea vesca
Catalpa syringæfolia
Cerasus Padus
vulgaris flore-pleno
Cratægus Oxyacantha, all varieties of colour
O. pendula
Crus-galli
Cratægus coccinea
Douglasii
macracantha
Cytisus Laburnum
alpinus
a. purpurascens
a. purpureus (grafted on Laburnum)
Fagus sylvatica
s. pendula
purpurea
Fraximus excelsior
e. aurea
e. crispa
Gleditschia triacanthos
sinensis
*Halimodendron argenteum
Kolreuteria paniculata
Populus alba
balsamifera
canadensis
candicans
monilifera
tremula pendula
Pyrus Aria
Aucuparia
A. pendula
A. fructu-luteo
hybrida
Malus floribunda
salicifolia pendula
spectabilis
s. flore-pleno
Quercus Ilex
Mirbeckii
Robur heterophylla
Turneri
Robinia Pseud-Acacia
P. Bessoniana
P. Decaisneana
†Salix alba
a. pendula
Basfordiana
fragilis
acuminata
gigantea
sanguinea
pentandra
triandra
Boweriana
attenuatifolia
vitellina
daphnoides
rosmarinifolia
Russelliana
‡purpurea pendula
§fusca
Salamonii
Tilia europæa
Ulmus americana
a. pendula
montana purpurea
glabra vegeta
plumosa
? Kidbarked Elm
Virgilia lutea

SHRUBS.

Amorpha fruticosa
Aralia Sieboldii
canescens
Berberis Aquifolium
aristata
Darwinii
Nubertii
vulgaris
v. purpurea
Buddlea globosa
Calycanthus floridus
Ceanothus azureus
Cerasus Laurocerasus
L. caucasica
L. colchica
lusitanica
vulgaris flore-pleno
Cercis Siliquastrum
Cistus landaniferus
incanus
laurifolius
Colutea arborescens
a. cruenta
Cornus alba
mascula
Corylus Avellana purpurea
Cotoneaster microphylla
Simonsii
Cratægus Pyracantha
Deutzia crenata flore-pleno
Fortunei
gracilis
scabra
Dimorphanthus mandchuricus
Elæagnus japonica
Escallonia macrantha
Euonymus japonicus
j. albo-variegatus
j. aureo-variegatus
Garrya elliptica
Hamamelis virginica
Hypericum calycinum
Ilex Aquifolium—several green varieties
Kerria japonica
j. flore-pleno
Lavandula spica
Leycesteria formosa
Ligustrum coriaceum
japonicum
lucidum
vulgare ovalifolium
Magnolia glauca
Myrica cerifera
Philadelphus coronarius
PhiladelphusGordonianus
grandiflorus
Phillyrea ilicifolia
buxifolia
Pyrus japonica
Raphiolepis ovata
Rhus Cotinus
elegans
typhina
glabra
g. laciniata
Ribes aureum
sanguineum
Rosa rubiginosa
Spartium junceum
Spiræa ariæfolia
callosa
bella
Lindleyana
japonica
Tamarix germanica
japonica
Viburnum Opulus
Tinus
Weigela amabilis
rosea
Yucca filamentosa
gloriosa
recurvifolia

To these may be added some climbing plants:

Ampelopsis Veitchii
Bignonia radicans lutea
r. major
Clematis Flammula
Jackmanni
Hedera Helix
Jasminum nudiflorum
officinale
Lonicera brachypoda
Lonicera aureo-reticulata
Periclymenum
sempervirens
Standishii

Roses of all kinds flourish in this soil. I believe that the plants named in the foregoing list may be safely relied upon to flourish on the typical chalk soils which constitute so large an area in the south.

* Grafted on Caragana arborescens.

† A large collection of species and varieties, of which the species here named have grown with the most conspicuous vigour.

‡ Grafted on Salix caprea; "American Weeping" Willow.

§ Grafted on Salix caprea; "Woolsey's Weeping" Willow.

western parts of this country. But, while the list may look long to the inexperienced planter, anyone with a knowledge of the now known resources of varied planting which the climate of this country allows will not fail to perceive how numerous and important are the omissions which my list displays. The great majority of these omissions, however, refer to plants which do not grow satisfactorily upon the chalk, rather than to those which are absolutely killed by its contiguity; the latter are comparatively few. Some of the trees and shrubs that flourish on this soil deserve special remark. Among the larger Coniferæ the common Spruce ranks first; scarcely one dies, and in a short time they grow with great vigour and rapidity, Pinus Laricio comes next; few of them die, and they grow with singular rapidity and strength. Many of my young trees have this year made leading shoots nearly 3 feet long, with laterals in proportion. Pinus austriaca grows well after the second year, but a larger proportion die than with P. Laricio. The Scotch Fir grows well, but some die. These four species are the best of the large common sorts for block planting, and may be thoroughly depended upon. Cedrus atlantica and C. Deodara do very well; the former will stand in exposed situations, but the latter grows best in protection. The Deodar is apt to become pale and yellowish where the chalk is very abundant in the soil, or is superficial. Picea Nordmanniana flourishes, but the colour of the foliage rather degenerates; on the other hand Picea Pinsapo retains its rich deep green, while its growth is most free and healthy; indeed, this beautiful Conifer evidently revels in a cretaceous soil, and from its character of growth it flourishes perfectly in the most exposed situations. It is so rigid that the wind never damages its branches. Every Yew tree that I have planted on the chalk has grown well. Of the Arbor-vitæ class I can most strongly recommend Thuja Lobbii and Thujopsis borealis. There is little to choose between them; they evidently delight in the soil, and they grow most luxuriantly; but with me Thujopsis best retains its green colour in hard frosts. It is a curious fact that all the Irish Junipers (merely a fastigiate variety of Juniperus communis) grow healthily on the most chalky parts of my land, while every specimen of the original form has died; this is remarkable as the common Juniper is a natural inhabitant upon chalk downs. The Wellingtonia is a complete success with me. Of large deciduous trees I would especially recommend Acer platanoides and A. colchicum rubrum, Populus monilifera, P. alba, P. canadensis, the common Lime, the Beech, the American and Huntingdon Elm. These nine species are especially useful for large and massive plantings upon the chalk, but others of smaller size have also done extremely well; for example, the several kinds of Alder, the Almond, both common and large-fruited; the latter is a most desirable tree with its immense blossoms. As regards the Birch, imperfect observation might lead to error; a large number of the trees die directly they are planted, and the soil might be thought inimical to them, but this is not so; they die from that quality which is inherent in so many trees—impatience of transplantation. When once established they grow with remarkable vigour on chalk soil. The double Cherry, Pyrus Aria, P. Malus floribunda, Mountain Ash, Cotoneaster Simonsii, Garrya elliptica, all the Sumachs, and the various Thorns grow with such exceptional strength that they evidently revel in chalk soil. Let me conclude by assuring any intending planter upon chalk that if he will adopt my list and have his land properly trenched, the result of his plantings will not disappoint him.—Mr. Salter, in the "Gardeners' Chronicle."

MATERIALS FOR WINTER PROTECTION.

After a very wet season, prolonged even to the present time, it may not be out of place to offer a few words of advice with respect to the protection of tender, half-hardy, or free-growing plants. My practice for many years has been to have an abundance of hay or straw bands, or Fern ready to hand, and on the advent of unfavourable weather to bind them round the stems of such subjects as I have mentioned from the ground to their branches or heads. For the protection of all kinds of tender dwarf trees, I have used, with excellent effect, dry leaves, which I have placed round their collars in a circle some 2 or 3 feet in diameter, or more if the subject was large enough to require it. Over these leaves long Fern, Pea haulm, straw, or evergreen branches have been pegged down in order that the protecting material might be kept in its place. By a little timely forethought of this kind, it is astonishing what a number of plants may be saved from the effects of danger during the winter months, and to what useful purposes much material, that is too often considered mere refuse, may be put. Haulm, prunings, leaves, dried Asparagus stalks, dead flower-stalks, &c., should, instead of being rotted in the refuse heap or charred, be thus utilised. I can recollect long and severe frosts setting in after much autumn rain, when, from the saturated state of the soil, the plants were least able to withstand their effects. For all kinds of kitchen garden tender vegetables, dry dust is the most simple and efficacious protector; it answers well with Lettuce, Endive, Cauliflower, young Peas, Beans, Radishes, and a host of other crops.

Exmouth. James Barnes.

NEW HORTICULTURAL SOCIETY.

A paper, containing suggestions for the formation of a "National Horticultural Society," was read before the members of the Lindley Club a few evenings ago by Mr. D. T. Fish. It was a long and eloquent address, from which, unfortunately, we can only find room for the following:—The name of our proposed society will suggest the extent and character of its labours. All its work at home and abroad, or in the provinces, would be national in its scope, character, and objects. The character of its work would be determined by the wants of the times. Such a society would be wide in its constitution, broad in its sympathies, unfettered by red tape, and unconfined by precedent. It would, doubtless, be met on the threshold of its establishment with the two contrary cries of garden or no garden. It would be presumption in me to attempt to determine such a weighty matter. But assuredly a garden has disadvantages as well as advantages. The first are very obvious. There is the cost and there is the tie; perhaps the last is the greatest obstacle to national work. Conditions are also changed; societies' gardens, as examples, are hardly needed now. No doubt they might be made useful for experiment, but commercial and private gardening have made such strides forward of late years that no national society could hardly hope to excel them in furnishing culture or results. Even experimental gardening is now more or less practised in almost every garden of the land, and some of our older cultivators begin to suspect that the whole art and science of horticulture is experimental, and that the wisest among us know next to nothing about it. Further, the government of the day does a good deal for botany and for gardening in the parks. The public learned and other societies, or companies, and town councils, and private individuals have their gardens and public promenades, from all which it may be inferred the new society cannot do better than go and do likewise. But an opposite conclusion is equally logical and perhaps more sensible. As there are already so many gardens, another may not be needed. True, we have no real horticultural garden except Chiswick—and in that horticulture has been half strangled for lack of means—and if the new society should elect to have one it must not be devoted to glitter and glare, but chiefly, if not wholly, to strictly horticultural uses. Neither would there be the slightest necessity for the society cumbering itself with the distribution of seeds and plants free, or flowers, or fruits at lower rates among its fellows. All such things the nurseryman and fruiterer do much better, and they are now wholly unworthy of the energies, time, and thought of a great national horticultural society.

The Chelsea Botanic Garden.—At the meeting of the Metropolitan Board of Works, the week before last, it was resolved that the Works Committee should consider the desirability of applying to Parliament for obtaining the fee of the Chelsea Botanical Gardens belonging to the Apothecaries' Company, and that the solicitor to the board be instructed to give the necessary notices.

Pinus Laricio for Exposed Poor Land.—This is one of the best Conifers for planting on poor land in exposed situations with a view to a permanent crop of timber. We have a quantity of it here planted out on a bleak plain in a thin, poor, brashy soil, on the green sand, growing away at a rapid rate, quite overtopping the Larch and Scotch Fir, and it appears to shape itself so well for a timber-producing tree that I believe it will prove to be the best of all the Pinus family yet introduced. It has other good qualities, too, for hares, rabbits, and boring beetles rarely injure it. It has, however, one drawback; it transplants badly, but this may be overcome by growing it on in a nursery and carefully shifting it every autumn until it is ready to plant out.—George Berry, *Longleat.*

Autumnal Tints in Cornwall.—The most striking sight in this way I have ever seen was a picture made this season by the following trees, which stand in the grounds here. The background (if I may so term it) was a large Tulip tree (Liriodendron Tulipifera) with leaves of a beautiful amber colour, and in front of it stood a deciduous Cypress (Taxodium distichum) from 40 to 50 feet in height, the tips of which were green, but all the rest of the leaves were bright brown, shading off still more to a reddish-brown. It is not always, even in this climate, that we are favoured with such a sight as these trees presented this season. A current of northerly frosty wind often sweeps across the country, carrying with it the most tender kinds of foliage—among which are, later in the season, some of the most beautifully-tinted leaves—while yet in a green state. The snowy Mespilus (Amelanchier Botryapium) has also been beautifully coloured this year. Beeches, however, have not been so bright as usual; but the so-called American Azaleas have been very brilliant. —Henry Mills, *Enys, Penryn.*

LAW.

(*Nisi Prius Sittings before the* Lord Chief Baron, *Barons* Cleasby *and* Amphlett.)

Williams v. Leslie, M.P.—An action was, a short time since, brought by Mr. Williams, the nurseryman and florist at Holloway, to recover £418 8s. 6d., being the amount of account for shrubs and flowering plants delivered at the defendant's residence at Glenlough, county Armagh, in Ireland. Mr. Leslie, who is M.P. for the county Monaghan, paid £300 into court in full satisfaction of the claim. The case was tried at the time before Mr. Baron Bramwell, and the jury found a verdict for the plaintiff, damages £100 over and above the sum paid into court. Mr. Hawkins, Q.C., now moved on behalf of the defendant for a rule to show cause why the verdict should not be set aside and a new trial ordered, on the ground that the learned judge had misdirected the jury, and that the verdict was against the weight of evidence. The learned counsel stated the facts of the case, which we reported last week. The Lord Chief Baron, having subsequently considered the case, said:—In this case, which was tried before my brother Bramwell, a verdict was found for the plaintiff for £426, being £98 above the sum paid into Court. A motion has been made for a new trial on the grounds of misdirection, and that the verdict is against the weight of evidence. The case is peculiar, and requires and deserves consideration. The plaintiff is a florist in England at a distance from the defendant, who is a gentleman of position and fortune in Ireland. Some hundreds of pounds are annually expended on the defendant's gardens, and great quantities of goods are purchased. There seems to have been unlimited confidence placed in the gardener to order plants. While this credit is going on, a series of purchases was made from the plaintiff's nursery garden. At one time, when the plaintiff applied to the gardener, the gardener wrote a letter in which he directly stated the limits of his account, and that this amount had been exceeded. The dealings, however, went on, and now the jury have given a verdict for those goods supplied. Two questions arise—whether the learned judge misdirected, and whether on the whole the verdict is against the weight of evidence. The learned judge ruled rather favourably to the defendant when he said that when the gardener had communicated the fact of his having exceeded his limit it was incumbent on the plaintiff to enquire as to whom he supplied goods. That was fair to both parties, especially the defendant, as it tended to show that he would not be liable if the plaintiff had gone on giving credit without asking. The two questions left to the jury seem satisfactory to the Court. We must assume that the articles were frequently seen on the spot by the defendant. As to their number and description he made no enquiry or observation until the question came as to the payment. The defendant might have ascertained about the goods, or he might have returned them. There has been no misdirection, as the questions were left to the jury in a favourable light to the defendant. I proceed to consider whether, on the whole case and its peculiar nature, the verdict was against the weight of evidence. Speaking for myself and for the Court, there are reciprocal duties imposed in this class of business. This is a case where the expenditure was large, some hundreds of pounds, and where the master had to trust entirely to his gardener's honesty. The master may fix a limit, yet he gives no intimation to the tradesman, nor takes any means to warn the seller that, though the gardener has a large, it is not an unlimited, authority. The defendant does not seem to have done that. The gardener made an intimation to the plaintiff of his own accord, and the plaintiff knew by this vague intimation that there was a limit. But it was not an authoritative notice by the gardener or his master that no goods were to be supplied beyond that limit. Undoubtedly the plaintiff ought to have ascertained on whose credit he was supplying the goods. But the jury have had an opportunity of judging whether the balance of imprudence and want of caution lay on the plaintiff or the defendant. They have come to a right conclusion. There was undoubted evidence that the defendant must have seen quantities of these articles in such a large supply. However, he does not enquire or communicate with the plaintiff, and he makes no offer to return them. The non-performance of this duty appears grave in the defendant. We think there ought to be no rule in the case.

(*Before Vice-Chancellor* Sir C. Hall.)

Dom Louis I., King of Portugal v. Carruthers and Another.—This cause came on for hearing on the 22nd of March last, when it was, upon the suggestion of the Vice-Chancellor, directed to stand over generally, in order to see whether some arrangement could not be made between the parties. No arrangement having been effected, the case came on again on the 31st of May, when it was again ordered to stand over to give the plaintiff an opportunity of verifying a translation of documents written in Portuguese. This having been done, the cause once more came on, and was argued on the 8th of July last, when it was once more directed to stand over, in order that a proposition for an arrangement might be considered. The case is as follows:—A bill was filed by the King of Portugal against Mr. Carruthers, of the British Museum and a Mr. Justen, as the executors of the late Dr. Welwitsch, in order to obtain a declaration that the King was entitled, as part of the public property of the Kingdom of Portugal, to certain collections of botanical specimens and natural objects made by Dr. Welwitsch, in the course of his explorations in the African Provinces of the Kingdom of Portugal, while in the employment of the Portuguese Government, including his notes and descriptions explanatory thereof. These explorations covered a period of seven years—from 1853 to 1860. In 1861, Dr. Welwitsch returned to Portugal; and, in 1863, he obtained permission to come over to this country with his collections, in order to get further scientific assistance from our museums and institutions, and particularly from the officials at Kew Gardens in arranging and classifying them. He continued to reside here, engaged in his work, and from time to time reported to the Portuguese Government, who, considering that sufficient time had been given him for completing his work, in February, 1866, suspended his salary. He remained here until his death in 1872; and by his will he disposed of his collections in favour of various persons and bodies, directing his "study" collection of African plants to be offered to the British Museum at the rate of £2 10s. per century (100 species), and giving two sets to the Portuguese Government gratis; one set, each gratis, to the Botanical Museums of Berlin, Lisbon, Vienna, Paris, Copenhagen, Rio de Janeiro, Carinthia in Austria, and one set to the English Government, gratis, for the use of Kew Gardens, and making other bequests of collections and objects to scientific persons and institutions. He concluded his will by saying that he made this disposition of his collections in the hope that all the bequests made to museums might be considered as made to them by the Portuguese Government, through whose assistance and liberality some of the collections were made. The collections were said to be, in some respects, unique, and the most valuable was the "study set." The cause was again mentioned by special order the other day, when, after some discussion, a decree was made by the Vice-Chancellor that the plaintiff should receive the "study set" referred to above on payment of the sum of £600; the second best set going, by the "grace and favour" of the plaintiff, to the British Museum; that the cost of separating the sets and the transcription of the notes be jointly borne by both parties, and the work be carried out by Dr. Hooker on behalf of the plaintiff, and by Mr. Wm. P. Heirn on behalf of the British Museum.

NOTES AND QUESTIONS—VARIOUS.

Boiled Celery.—Celery is commonly grown for salad, and eaten as such, as a rule. It is not generally known that stewed or boiled Celery is a very excellent dish served, as is done in the case of Seakale, with melted butter. The blanched part, of course, is the only portion eaten; and that is cooked entire, without cutting it up in any way.—Chevalier.

Lithospermum prostratum at Heckfield.—This has been in flower on the rockery here, more or less, ever since last March, and at the present time is literally covered with its deep reddish-blue flowers. It should be included even in the most select collections of Alpine and rock-plants, as it is nearly always in flower, perfectly hardy, and evergreen.—W. Wildsmith.

Myrsiphyllum asparagoides.—This is, as Mr. Hovey says, a very useful plant, and one which deserves to be more widely known than it is. We have two or three dozens of it in use, and we find it unusually accommodating in many ways. It is easily raised from seed. An old plant, in a warm place, fruits freely, furnishing plenty of seed for keeping up a fresh supply of young plants.—Chevalier.

Ripe Raspberries in November.—I send you a branchlet with many full-grown ripe Raspberries on it which I cut from a plant in my garden this morning. It being the 18th of November, it appears to me unusually late for fruit to be growing and ripening out of doors. These autumn fruiting Raspberries are a great gain for our gardens.—C. J. Cox, *Ravensbourne Lodge, Bromley Road, Catford Bridge, Kent.*

Coe's Late Red Plum.—This is the latest of all Plums of the same size. It ripens in the end of October and November. Those who are desirous of having a late supply should plant it against a wall. We have it trained here as single cordons on an east wall, and at this date (November 17th) the trees are loaded with beautiful sound fruit, after being subjected to 5° of frost.—Richard Nisbet, *Aswarby Park, Folkingham.*

White Fly in Greenhouses.—In my greenhouse I am pestered with a little white fly, which attacks more particularly Bouvardias. Tobacco-smoke kills the fly, but as yet I cannot destroy the eggs, which cover the under-sides of the leaves. Therefore, although the house be fumigated to-day, the fly is equally plentiful the next day.—John Astley. [Without specimens it is always unsafe to give any opinion, but, judging from the description just given, this seems to be Psychoda phalænoides. I never, however, heard of its doing any mischief to living vegetation.—A. M.]

Begonia octopetala.—I have a plant of this in a moderate house, with eight or nine large leaves on it; but it has, as yet, shown no sign of flowering. It is in a 48-sized pot—pot-bound, it is true, but very healthy. If you can furnish me with particulars as to its treatment, and when it should flower, you will do me a service.—Wm. Ferguson, *Elm Bank, Hornsey Lane.* [Begonia octopetala grows well in a moderate stove temperature, say from 58° to 65°, and, as the plant in question is healthy, it need not be re-potted until spring. It is a plant which grows well in a light, peaty compost, and one which is now in most good collections of plants. It generally flowers in the spring or summer months.]

Three New Lilacs.—M. Baltet, of Troyes, possesses three Lilacs, which are said, by those who have seen them, to be the best of their kind. One, called Syringa Ville de Troyes, flowers late; its panicles are abundant, and, in colour, a deep violet. Another, named S. aline mocqueais, is dwarf in growth, and is very floriferous. The thyrses are compact, and of bright, vinous red. Altogether, it is a most charming plant. The third, S. croncelsis, is a very vigorous shrub, the flowers of which are borne in large bunches at the extremity of the branches, and are of a carmine-lilac. These three varieties are robust and most effective.

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> "This is an art
> Which does mend nature: change it rather: but
> THE ART ITSELF IS NATURE."—*Shakespeare.*

THE GLOBE-FLOWERS.

By J. C. NIVEN, Botanic Gardens, Hull.

FEW plants are more desirable for our gardens than those known by the generic name of Trollius, or Globe-flowers. All the species, though varying considerably in height, are of neat compact habit. With them such a thing as stakes, or other modes of support, need never be resorted to. They carry their own golden globes with an independence that constitutes by no means a small portion of their charm. Those of my readers who have ever rambled in the upland meadows of the north of England during the months of May or June—the harvest time for botanical collectors—will have been, like myself, charmed by the glory of rich canary-yellow, which the masses of our native Globe Buttercups present; nor can they have avoided noticing the contrast—or rather, I perhaps ought to say, the gradual blending—of colours, the clear yellow of the Trollius, growing on the higher slopes, merging gradually into the deep yellow, approximating to orange, of the Marsh Marigold (Caltha palustris), which likes to associate itself with the more swampy portion of the low ground, and loves the immediate proximity of the stream. The colours, it is true, are closely related; but, when seen from the distance, or viewed from an elevated knoll, or mountain spur—distributed over extensive tracts—the difference in tint, owing to the predominance of this plant, varying, as it does, with the moisture or dryness of the land, has an effect even more pleasing than could be produced by the association and intermixture of more strongly defined colours. Both must rank amongst our wild plants; but, nevertheless, they are not on that account to be despised. The Caltha is truly cosmopolitan, being found on the banks of every water-course, whether upland or lowland. The Trollius, however, is rarely met with in any abundance below an altitude of 600 or 800 feet; and, even under those circumstances, it is much more restricted in its distribution, and decidedly more local in its habitats. Prior to giving an outline of the more distinct species of Trollius at present in cultivation, which I purpose briefly doing in the present article, it will be as well to notice some of those characteristics which are common to all the species, and thus, in some measure, economise space and avoid unnecessary repetition. In the first place they are all of a dense compact habit of growth, the foliage and flowers rising from an underground crown, which possesses no rambling proclivities—a failing which mars the value of many an otherwise good herbaceous plant. The roots are numerous and deep searching, especially in a border where perfect drainage removes the water-level to a considerable depth, a character which, though not absolutely essential in this case, should form an important feature in all well-made herbaceous borders. The leaves, supported on moderately long footstalks, are palmately divided, sometimes more, sometimes less. They also vary in consistency and colour. In some species they are thin and flaccid, with a tendency to reflex, and, under such circumstances, are usually of a bronzy-green; in others they are of considerable substance, the lobes assuming a horizontal character, and the colour a deep olive-green. The flowers, besides presenting considerable variation in colour from a pale yellow to deep golden, almost bordering on vermilion, have a further peculiarity, inasmuch as what appears to be the petals are found, on a closer examination, to be really nothing more than the divisions of a petaloid calyx, the true petals being represented by a series of linear processes of intense orange colour, that form a circle between the concave globe-like sepals and the stamens. These, though generally inconspicuous, and only appreciable by the botanical eye, constitute, in one or two instances, as will be presently shown, not only a marked distinction—for the benefit of the descriptive botanist—but also an element of beauty, which will at once appeal to the most uneducated eye. All the species are early summer bloomers, and are at their best in May and June. Occasionally in old established plants a few autumnal flowers are developed in September and October, but these depend alike on the season and the superabundant exuberance of the plant itself. As regards propagation, they may be most readily increased by division of the root, an operation which should be performed either in September or in March; of the two the former is the best time, as the plants have then an opportunity, during the remaining portion of the autumn, of making fresh roots and thoroughly repairing the damages unavoidable in the operation, before the dry early summer sets in. When divided in March a few dry days, accompanied by sunshine, is sure to find their foliage uncomfortably prostrate on the ground, and the blossoms are equally certain to be puny and short lived. Besides root division they may also be propagated by seeds. These, in vigorous well-established plants, are produced freely, and generally retain, with marked persistency, the specific characters. It is to be noted, however, that they rarely vegetate the same year that they are sown, but come up vigorously the following spring; and, if carefully attended to, will make fine flowering plants the second season after vegetating; they will not, however, attain their full development until the fourth year or even later. They grow freely in any soil, are partial to a good stiff loam overlying a cool moist subsoil, but, if cultivated in a dry situation, should have a good supply of manure, not only to act as a stimulant, but as a mechanical and moisture-retaining element in the soil; for, be it remembered, that the mountain meadows they affect are almost invariably supplied with cool water springs below, which enable the plants to withstand the burning heat of an uninterrupted day's sunshine without showing, by their flaccid leaves, any indication of exhaustion. The chief specific distinctions hinge on the more or less complete divisions of the leaves, the closed or open arrangements of the concave sepals, and the persistent character of the styles, which terminate the carpels of which the apocarpous ovary is formed.

T. europæus (the Mountain Globe-flower) is the native species with which we are all familiar, and to which I have already alluded; its height is about 15 inches; the leaves five-lobed, and further divided by irregular serratures; the flowers are of a lemon-yellow colour; the sepals concave, forming a perfectly globose flower, from 1 to 2 inches in diameter; the abnormal petals are narrow and linear, shorter than the sepals, and, owing to the globose character of the latter, completely enclosed within the same. This plant is, as the name would indicate, of common occurrence throughout the upland meadows of Europe, and by no means an especial native of Britain alone.

T. asiaticus has much more divided leaves, also distinguished by their bronzy-green, as regards colour; the flowers are similar in size to those of the last species, but of a golden-yellow not globose, the sepals, as they reach maturity, expanding sufficiently to show the series of linear petals; when growing vigorously it attains a height of 18 inches; it flowers in the early part of May and rarely perfects its seeds, but is readily increased by root division. It is a native of Siberia. There is a fine variety of this species met with occasionally in cultivation, under the title of T. americanus; so distinct is it in its tall and slender habit of growth, as also in the intense depth of its orange blossoms, that I question whether it should be considered a distinct species; at any rate it is not the true Pennsylvanian Globe-flower figured in the "Botanical Magazine," the sepals of which are wide expanded, the flowers having considerably more the aspect of a Hellebore than a Trollius. It has never been my good fortune to meet with the true American species in cultivation—this, for which I feel almost inclined to claim a specific designation, I had originally from America, and was in hopes that I had secured the true plant. It is, however, closely related to the Siberian, and for the present I will retain it as an American variety of the Asiatic Globe-flower.

T. albus is considered by some as a mere variation of T. europæus, but my impression, based upon the fact that it reproduces its special peculiarities perfectly true from seed—which, by the way, it rarely produces—led me to consider it a distinct species. Occasionally we meet with it under the title of T. pumilus, a name so much more appropriate that I am almost disposed to dispense with the former and retain the latter as the specific cognomen. The flowers are, it is true, of a pale lemon colour, but not white, as the former specific name would indicate. They, however, are dwarf in stature as well as small in development; hence the appropriateness of the specific title I prefer for adoption. Our plant, whether known by the "white" or "dwarf" titles, is especially fond of peat soil, more, perhaps, than any other species of the genus—is exceedingly compact and distinct in its leaf arrangement. These, like its blossoms, are scarcely half the size of the common European species, and so constant is it that I am disposed to recognise it as a perfectly distinct species, under the title of T. pumilus.

T. dauricus is distinguished from the foregoing by its gigantic growth, both in respect of plant development and bloom. Its leaves are large, much divided, of a deep olive-green, and supported on long foot-stalks. The lobes are somewhat rigid, and expanded horizontally. The flowers are large, lemon-coloured; the sepals overlapping one another in a globose form. It is a native of Dahuria, and is a most desirable plant. It seeds freely, and may, by this means, be readily increased perfectly true to its specific type. In our heavy soil, which appears to be admirably adapted to the requirements of the genus, it attains the height of 3 feet or more, and is identical with the species known by the title of T. giganteus and T. Demayanus.

T. napellifolius.—Of vigorous growth. The large divided leaves are of a bronzy-green, the points drooping; it is a handsome strong-growing species; the flower globose, deep yellow, bordering upon orange, more than 2 inches in diameter. It is a native of central Europe, where, on the slopes of the Carpathian Mountains, it forms a very conspicuous object; and in our herbaceous borders, it carries off the palm as unquestionably the most showy of the genus.

T. sinensis is a very distinct plant, a native of Japan and China, and possibly identical with the species known by the title of T. Fortunei. The former, however, claims priority; and hence I retain it as the type of a remarkably distinct section of the genus. The leaves are much divided and reflexed, as in the preceding species. The flower-stems attain a height of 2 or 3 feet. The flowers are of a deep yellow, the sepals partially expanded; the circle of bright orange petals rises to double the height of the sepaline segments, and gives a singularly marked character to the flower, added to which we have a hooked appendage to the follicular fruit originating in the indurated character of the style and stigma. It blooms in the month of July, and, in this respect, bears some relationship to the American variety of the Asiatic Globe-flower, to which it is in some degree related.

Besides the foregoing, we have T. altaicus, T. caucasicus, T. intermedius, T. tauricus, and T. medius, all of which bear a very close relationship to either the European or Asiatic forms. So slight, indeed, is the difference that I think, in the species above enumerated, the ordinary cultivator will find all that is required, so far as the genus can supply, towards the decoration of the early summer borders; and, with that selection, I feel sure he will not be disappointed.

THE HOME LANDSCAPE.

As adversity sometimes brings to light the bright spots in human character, so a nipping frost brings out the bright spots in many a garden as well as landscape. The deep, dull, green colour of various trees and plants change in autumn, frequently putting on very gay colours. The Swamp Maples assume a crimson-scarlet; the Sugar Maple and Hickories a golden-yellow, the Liquidambar a dark crimson or maroon; the Tupelo a vivid crimson, each species possessing a tint of its own. But from this extended panorama of field and forest it is well to turn occasionally to the home picture of our own gardens and immediate surroundings. I have been looking at the two pictures to-day, one extending for miles in every direction, and while it could not fail to impress one with admiration at the wonderful variety and harmony of colours, still distant views, extending over broad and expansive fields, are sometimes more tiresome to the eye than a somewhat circumscribed range of vision. Then, again there are pleasures to be derived from a close examination of those dull or bright spots in the great canvas, and this can readily be done, without inconvenience in one's own garden; and each day brings a change at this season; the broad leaves of some shrub or tree suddenly fall, opening to view some bright little gem which has been putting on its gay dress while hidden from view. There is a wonderful difference in the manner in which trees and shrubs shed their leaves. For instance, a Yellow-wood tree on my lawn was yesterday full of its yellowish, autumn-coloured leaves, but the frost of last night caused every one to drop before noon to-day, while a Liquidambar, near by, has scarcely as yet shown an autumn tint, the leaves remaining fresh and green. This sudden defoliation is also a characteristic of the Mulberries, Butternut, Black Walnut, the larger-leaved Magnolias, while the leaves of the Hickories and Chestnuts adhere till a hard frost; and the Oaks and Beeches are persistent to the last, many a brown and withered leaf hanging on to the twigs until pushed off by the new comers of spring. The falling of the leaf may be food for melancholy with some gloomy persons, but to the naturalist it is an interesting field for study, fraught with many an unsolved mechanical and chemical problem.

A. S. Fuller.

NOTES OF THE WEEK.

—— On Monday evening last Mr. George Webb read, at the Institution of Surveyors, Great George Street, Westminster, a valuable paper on "Fruit Cultivation in Kent," a full account of which will be found in another column, together with a digest of the discussion which took place on the occasion. Among other points alluded to in this interesting lecture were the different degrees of success which attend fruit culture at different altitudes, a subject to which we would especially direct the attention of all who grow fruit either for profit or pleasure. How is it that our Royal Horticultural Society does so little in the way of lectures and discussions when other institutions so fully recognise their importance? In America and on the Continent fruit growing receives the attention which it deserves; but, in this country, it would appear that such matters are left to be dealt with by societies formed for other purposes, but which seem more thoroughly to appreciate the importance of the subject than those to which it rightfully belongs.

—— With reference to the proposed change in the Botanic Gardens, at Oxford, which Dr. Acland so strongly advocates, there can be no doubt that he is quite right, and that it would be a great boon to Oxford to have a noble garden in the position he mentions. It would, however, be none the less a sacrilege to interfere with the old garden, which is one of the most interesting in Europe, and, for its size, one of the most richly stocked. The old garden is one of those designed when we had comparatively but few plants to deal with, and it is wholly inadequate for the proper reception of the immense number of hardy trees, shrubs, and plants now in cultivation. There is not in the whole space of the old Botanic Garden, at Oxford, sufficient room for the proper arrangement and grouping of the obtainable species and varieties of Oaks alone. We trust, therefore, that Dr. Acland and those who think with him will, notwithstanding all opposition, succeed in establishing a Botanic Garden sufficient for modern requirements.

—— The Rose buds now sent to Covent Garden from Mr. P. Ladd's great winter flower growing houses, at Bexley Heath, consist of Nephetos, Isabella Sprunt, and Sofrano, which are found to answer better than any other kinds for market purposes at this season of the year.

—— Amongst Orchids in bloom in the collection of Mr. Lea, Parkfield House, Worcester, is a plant of Odontoglossum Roezlii, bearing eight flower-spikes, on each of which are four flowers. So fine a specimen of this rare and beautiful Orchid is not often seen, and so free is it, that it flowers twice in a season. The blossoms too, when severed from the plant, last long in a cut state.

—— There is now a superb display of French fruit in Mr. Lewis Solomon's shop in Covent Garden. The specimens of Easter Beurré and Glou Morçeau Pears, and Reinette du Canada and White Calville Apples are well worth seeing, their appearance being very distinct from that of English-grown fruit. The specimens to which we allude were selected by Mr. Solomon's agent in Paris.

—— Complaints are frequently made that really good mealy Potatoes are now obtained with difficulty in the London markets. The best Regents are being kept back for the after-Christmas season. Some of the traders attribute the scarcity of good Regents to the excitement about the newer kinds, not one of which equals in flavour and appearance, when properly boiled, a good Regent.

—— Mr. Sturtevant, a gentleman much interested in the native plants of North America, called on us the other day with some dried specimens of the most attractive kinds, and stated that he had, during the past summer, found a plant of Cypripedium spectabile with seventy good flowers on one tuft. It was growing in a bog on the margin of a thin wood about 100 miles west of Quebec.

—— Forced Tulips have again made their appearance in Covent Garden, and in the case of those sent by Mr. Herbst, of Richmond, a little tuft of Pteris serrulata, placed in the midst of each small pot, containing four bulbs, gives a graceful finish. Sometimes the Tulips peep from a tuft of Lycopodium, so that even in our markets there are signs that we are moving from the harsh, stiff, and bare.

—— As an instance of the surprising growth of horticulture in America during the past few years, we learn that of Mr. Peter Henderson's work, "Gardening for Profit," first published in 1866, the surprising number of 40,000 copies has already been sold. His second book, "Practical Floriculture," first published in 1868, has been sold to the extent of 25,000 copies. We believe these numbers are unexampled in any European country, and the success of the books in question is the more remarkable, as they were, in the main, written for commercial gardeners.

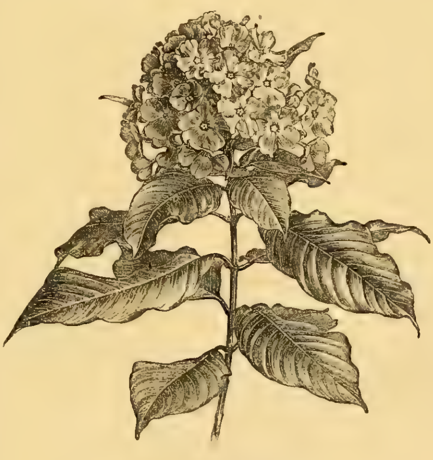
—— A Californian Grape-grower from 26 acres of Vines has from this year's crop harvested 100 tons of Grapes.

THE INDOOR GARDEN.

THE BEST SWEET-SCENTED INDOOR SHRUB.

(LUCULIA GRATISSIMA.)

For winter blooming few flowering plants equal this fine old warm greenhouse or conservatory shrub; and yet how rarely is it to be met with in cultivation. In years gone by, when the Royal Horticultural Society's meetings were held in Regent Street, exhibitors used often to stage specimens of it in pots, each bearing from twelve to thirty heads of delicately-tinted sweetly-perfumed Hydrangea-like flowers; but their real beauty only becomes strikingly apparent when planted out in the bed of a conservatory. A noble specimen of it used to grow in the large conservatory at Chiswick, before it was converted into a Vinery; and there is also a very large example of it in the Royal Gardens at Frogmore. One of the finest plants of Luculia we have ever seen, however, is in the conservatory at Little Dalby Hall, Leicestershire, where it fills one corner of the structure, and bears a profusion of its soft rosy flower-heads at Christmas. There are several reasons why this plant is not more generally grown than it is in our gardens. In the first place cuttings of it do not root readily if taken off in the ordinary way, but herbaceous cuttings of it are more easily dealt with. The plant, however, is a slow grower in its early stages, and a good deal of care and patience is required before it can be got into a flowering state. Success is best achieved by planting out young plants of it in a deep rich conservatory border, consisting of fibrous loam and a little peat and silver sand. Thus treated, and shaded from bright sunshine, it grows far more vigorously than it does in pots, and it is not so subject to insect pests, such as thrips, spider, and mealy bug, which have a great liking for its somewhat succulent foliage. Perfect drainage must be secured, otherwise very little progress will be made, the roots of this plant being very tender until it is thoroughly established. Our engraving represents a truss of bloom of this Luculia, situated on the end of a cut branch. As Luculias are just now coming into flower, it would be interesting if some of our readers would furnish us with accounts of some of the more remarkable specimens that are known to exist in different parts of the country. Q.



Luculia gratissima.

SCHIZOSTYLIS COCCINEA INDOORS.

This is one of the most valuable of plants, either for conservatory decoration or for growing in any warm sheltered nook for supplying cut flowers during autumn, and no garden, however small, should be without it. In order to have strong plants, it should be planted out early in the spring, in beds specially prepared for that purpose, as it grows much more vigorously treated in this way than it does when confined in pots. The beds should be formed of some rich vegetable material, such as leaf soil and good fresh loam, or any refuse peat that has been cast aside as unfit for potting purposes. If either of the above materials can be spared to form a bed from 6 to 10 inches deep, there will be no difficulty in growing such plants of Schizostylis as will produce an abundant supply of its rich scarlet Gladiolus-like blossoms during the greater part of the winter. Where supplies of leaf soil or peat are not to be had, it may be grown tolerably well in any ordinary soil that has been well enriched with rotten dung previous to planting. Its flag-like leaves are rather subject to red spider, but this may always be prevented by keeping the plants well supplied, when necessary, with water, as it is invariably over-dryness, either in the atmosphere or at the roots, that favours the existence of this pest; both may, therefore, be guarded against by sprinkling the plants overhead two or three times a week, or as often as the weather renders such a course necessary or desirable for the health and well-being of the plants. If treated in this way, they will be found to produce flower-spikes early in October, when they may be taken up and placed in pots according to the size and strength of the tufts. They should then be placed in a close, moist frame for a week or so, to give them a chance of becoming established before being placed in the comparatively dry atmosphere of a greenhouse or conservatory.

Woolverston. J. Sheppard.

THE BEST FLOORING-BRICK FOR GLASSHOUSES.

I have seen many kinds of materials used for floors in glass-houses, but I never yet met with anything equal to some Staffordshire bricks which we have in use in most of the houses here. They have an impressed diamond pattern on the upper surface, so that the floors may be wetted to any extent without the slightest inconvenience or discomfort to the feet, as the water used lies in the narrow sunken grooves that form the pattern. The centre part of the diamond is very slightly raised, and the whole tile is thickly glazed before burning; they are, therefore, quite impervious to moisture, and, on that account, never become green or discoloured. A few potfuls of water, thrown down just to rinse them, constitute all the labour which they require in order to keep them clean. They appear to be made of clay containing a good deal of iron, and are so hard as to render it difficult to cut or reduce them in size, should it be necessary to do so for the purpose of finishing off at the end of a pathway. As to wearing them out, that seems an impossibility; for, although they have been laid down here a great many years, they are just as good now as they were at first, and look as if they would last in the same condition for an indefinite time. They are made in regular sizes of about 10 inches long, 6 inches wide, and 2 inches thick, and may, therefore, be quickly and neatly laid on a bed of mortar. This should rest on a firm gravel or concrete bottom, in order to prevent any settlement that would be likely to occur from the quantity of water that is necessarily thrown down in houses devoted to forcing purposes, or that may be used for the growth of stove plants. Being of a dark bluish-black, they set off plant colours to good advantage, which can hardly be said of encaustic tiles. We have cement pathways in one of the houses; but, of all floors, except for the purpose of being kept clean with a minimum of labour, this is the most objectionable, as it is impervious to water, and is therefore constantly wet and unpleasant to walk on. Where expense is an object, very good looking serviceable floors may be made with clean shingle or spar, resting on a well prepared bottom of some firm binding material. For forcing houses where a walk has to be carried over a Vine or Peach border, nothing is better than the trellis described and recommended by Mr. Muir (p. 384), which, so far as my own experience goes, is thoroughly adapted to the purpose, and may be kept clean with a minimum of labour, whilst its removal, when necessary, is a matter of the greatest ease and expedition. S. J.

A PALACE FOR ORCHIDS.

Last year you permitted me to ask your readers if they could inform me how the glories of the Orchid-house may be enjoyed without the inconvenience of a Turkish bath. I was informed that it was impracticable. As that is a term I cannot recognise, my glass casè having proved a failure, I resolved to try again. Accordingly I erected a conservatory against the end wall of my house, heated with hot-water pipes. Then I opened the wall on both sides of the fire-place, and substituted plate glass for brick-work. It has proved a perfect success. As we sit by the fire, on either side the eye revels in a blaze of Orchids mingled with Ferns. The apprehension was that moisture would dim the glass; but this does not continue for five minutes after the fire has been lighted and the temperature of the room raised a few degrees. As the Orchids come into flower they are removed to this Orchid palace—for such it is—and there all the household enjoy their beauties, and neighbours make visits purposely to look at them. They are hung from the roof or raised on benches, according to their various habits, and choice Ferns and some variegated stove plants are mingled with them. A Bougainvillea covers the roof with its mauve-coloured bracts. The reader will judge what it is when I say, that standing in the drawing room I see as if they were in the room—for the glass wall does not betray itself—presented to the eye at this moment of writing (November 22), and all in full flower—Cymbidium Mastersii, Stenia fimbriata, Colax jugosus; Oncidium Papilio, pelicanum, crispum, crocidipterum, cucullatum, flexuosum, aurosum, tigrinum, Burlingtonia fragrans and B. venusta; Odontoglossum Roezlii, Uro Skinneri, grande, Insleyii, leopardinum, Rossii majus, Bictonense; Zygopetalum Mackaii and crinitum; Lycaste Skinneri and leuco-flavescens; Cattleya Aclandiæ; and violacea intermedia; Maxillaria grandiflora; Calanthe Masuca, Phalænopsis grandiflora, Miltonia candida, Pleione maculata and lagenaria; Cypripedium niveum, barbatum, and insigne; and Dendrobium nodatum and chrysotis. Edwd. Wm. Cox.

Moat Mount, Hendon.

SELECTION AND CULTIVATION OF HYACINTHS.

There is no better time for potting Hyacinths intended for spring display than in November. As a matter of course, such early blooming kinds as the early white Roman, and also the single red L'Ami du Cœur, the white Grand Vainqueur, and the blue-grey Charles Dickens, together with a few early-flowering Scillas, Tulips, Crocuses, and Narcissi, should be potted the first or second week in September, and on to the end of that month; but for common Hyacinths there is no better time than that just named. Generally they are too early potted—before the bulbs have recovered from the effects of the long, close confinement during the transit from Holland to this country, and ere they have become thoroughly matured. That is why it is I always like to lay my Hyacinths out on a shelf in a greenhouse until the embryo roots swell out in a kind of circlet round the base of the bulbs; and then, that stage reached, as soon as they come into contact with the soil they at once send forth stout roots, and make strong growth. I have known cases of early potted Hyacinths rotting owing to their being placed in contact with the soil too soon after being imported; and, after all, nothing is actually gained by such early potting, except in cases where it is intended the bulbs shall be forced. Some of the exhibitors at our large Hyacinth shows pot them about the middle of October, and onwards; but the greater part of show Hyacinths are placed in their pots in November. I would, however, always impress on cultivators the necessity of obtaining their bulbs early from the dealers; not only because the finest bulbs are invariably selected for the earliest orders, but also because they can look better after them, preparatory to potting them, than dealers can. In what is termed the red class there are now some fine kinds, such as Cavaignac, salmon, striped with bright rose; Princess Helena, delicate rosy-pink; Beauty of Waltham, carmine with white centre; Garibaldi, bright scarlet; Howard, brilliant pale red; Koh-i-noor, a semi-double variety, with bright salmon-pink flowers; Lina, bright crimson; Linnæus, bright orange red; Pelissier, crimson-scarlet; Prince Albert Victor, shining red-crimson; and Von Schiller, deep salmon-pink. Several of these furnish fine deep hues of colour that do not characterise the cheaper varieties. Among blue flowering kinds some are surpassingly beautiful; of these the best are Blondin, silvery-grey, the reverse of the petals blue-purple; Czar Peter, pale lavender-mauve; and De Candolle, lilac and mauve, a distinct and fine variety of darker shades of blue and mauve. There are, too, General Havelock, rich glittering purple; King of the Blues, rich dark blue, one of the most beautiful of Hyacinths; Lord Melville, indigo-blue, with a large white centre to the bells; l'Honneur d'Overveen, deep mauve, compact and beautiful; Mdlle. Thérèse, deep mauve; and Sir Henry Havelock, purple-mauve. Among pure white flowers may be mentioned La Grandesse, a magnificent variety; l'Innocence; and Snowball, a fine variety, with magnificent bells of great thickness. Among yellow flowers there are Bird of Paradise, rich primrose, and Ida, pale primrose—both fine kinds. Some of the above bring rather high prices, but happily for those who cannot afford to purchase comparatively new Hyacinths, there are many old varieties of excellent quality that can be obtained at a cheap rate, though they lack the rich and varied colouring to be found in the high-priced kinds. A selection of really good moderately-priced varieties can be made from the foregoing, and it may be stated that some of these are always found in the best collections staged for exhibition purposes. In the red class, including rose and pink flowers, there are Lord Wellington, double; Fabiola, Le Prophète, Noble par Mérite, double; Norma, Princess Helena, Susanna Maria, double; l'Etincelante, very bright coloured; Lord Macaulay, Robert Steiger, Princess Clotilde, Solfaterre, Queen Victoria, Victor Emanuel, and Victoria Alexandrina. Among pale blue flowers may be found such well-known varieties as Couronne de Celle, Grand Lilas, Grand Vainqueur, Leonidas, Orondate, Van Speyk, double; and, among darker flowers, Albini, double; Argus, a beautiful dark blue variety with white centre, somewhat difficult to grow, but when well done very beautiful; Baron von Humboldt, Baron van Tuyll, Charles Dickens, Feruck Kahn, Garrick, double; Laurens Coster, double; Lord Palmerston, pale blue with white centre, a lovely Hyacinth; Madame Coster, Marie, Mimosa, Shakespeare, and William I. Of white varieties, there are alba maxima, alba superbissima, Baroness van Tuyll, a white sport from the old blue Baron van Tuyll; Crown Princess of the Netherlands, La Franchise, Madame van der Hoop, Mirandoline, Mont Blanc, Paix de l'Europe, of the pure white flowers; and of the cream-white, Anna Paulowna, a single form of the old double Groot Voorst; Cleopatra, Elfrida, Grandeur à Merveille, Lord Granville, and Séraphine. The yellow section may be named Alida Jacoba, Anna Carolina, Duc de Malakoff, generally classed with the single red flowers; Heroine, La Citronnière, and L'or d'Australie. The introduction of several fine mauve-coloured flowers has made it necessary that they should be grouped under a section in catalogues, and it includes Haydn and Sir Edwin Landseer among the cheaper kinds. Hyacinths should be placed singly in 32-sized pots, using a little drainage, and placing next what is used for the purpose a layer of rotten dung. Some leaf mould, yellow fibry loam, and spent manure that can be readily crumbled in the hand, should be mixed in equal proportions, with a little white sand to keep it open, and in such a compost Hyacinths cannot fail to grow finely. The bulb should be about half buried, a good sprinkling of water should be given to settle the soil about them, and then they should be set away on a bed of ashes, in some sheltered spot in the open air, or better still, in a cold frame where they can be protected from excessive rains, and the bulbs covered with cocoa-nut fibre or coal ashes to the depth of six inches or so. Sometimes it happens that Hyacinths are unskilfully planted, and unless some covering be laid on the surface of the pots, the bulbs, in the act of rooting, will force themselves up out of the soil, in consequence of its being too hardly pressed together at the base of the bulbs. Those who exhibit Hyacinths sometimes adopt the practice of inserting a small thumb pot over the surface of the crown, so that when the foliage begins to grow it shall not be disfigured by contact with the ashes. In six weeks or two months the covering should be removed, and the Hyacinths placed in a cold frame or cool greenhouse, and allowed to develop their foliage in their own time. When it is desired to have fine spikes, it is important that the early growth be made as strong as possible, for then is laid the foundation of a noble spike. When the days lengthen and the weather becomes warmer, they can be pushed on into growth as fast as is desired. It is not difficult to grow fine Hyacinths, provided one has good bulbs, a suitable compost, and requisite attention is paid to their cultivation. Nine-tenths of the failures that occur are from want of a little necessary supervision. R. D.

M. SISLEY ON RAISING PELARGONIUMS.

Our Lyons correspondent, M. Jean Sisley, gives some of his interesting experiences of this subject in the "Illustration Horticole." "To Geranium platypetalum I applied pollen artificially this spring to a hundred flowers under glass, by taking the pollen of one flower to the pistil of another, but without obtaining any seed. Can it be a sterile hybrid? Mr. Ellacombe states that it seeds freely with him, but, so far as I can judge, the packet of capsules he has just sent me contains no seeds. There are many curious plants of this sort. You are aware that the greater part of my time is taken up with the artificial fertilisation of Pelargonium zonale. Well, I often find a difficulty in fertilising certain varieties—among others Soule des Hesperides, from which, three years ago, I obtained Victoire de Lyon. For the past two months I have been trying daily to fecundate it without success. The same with Oracle, Beauté de Suresnes, and Notre Dame de Beaunaud. Last year, however, I got two seeds from the last, but the plants raised therefrom have not yet flowered. The zonal Madame Vaucher is an instance. This variety is easily fecundated with pollen from double or single varieties of other colours, but it almost invariably gives birth to single white-flowered varieties, not, however, identical with itself. I have used its descendants, fertilising them with their male parents. In this way I raised Aline Sisley, a double white, from a white-flowered daughter of Madame Vaucher and a double scarlet father. As a rule, my experience is that the male exercises greater influence on the character of the progeny than the female. You know most botanists maintain that hybrids are sterile. This appears to be generally true; witness the hybrids between P. zonale and peltatum raised by Mr. Wills, which seem to be barren. Mr. Peter Grieve wrote me the other day that he had not been able to obtain seeds from them, though Mr. Laxton informed us last year that he had secured seeds, but they exactly reproduced the mother. Mr. Pearson contends that Mr. Wills tried a thousand times before he succeeded in getting the cross. On the other hand, we have the natural hybrid, which sprang up in a bed at Nice planted with the two species, and this seeds freely. I should be happy if I could raise a new race of Pelargoniums. Mr. Lowe pretends to have raised hybrids between P. zonale and Geranium pratense. I have his bantlings, but, judging from the leaves, they are true zonals! Shall I, like Mr. Wills, have to try a thousand times before I succeed?"

Old Plants of Primula sinensis.—I am surprised to see that "D." (see p. 409) finds old plants of these to flower earlier and better than seedling plants. That is quite contrary to my experience; for, except in the case of double or very choice varieties, I do not find old plants worth retaining. Our plan is to make a small sowing in heat in February, and again at intervals of a month until June, which gives us a constant succession of flowering plants from October till May. The time of flowering is entirely regulated by the date on which the seed is sown; those sown early have the blooms pinched out several times to strengthen the plants or they would be in full flower in August, when we do not require them. Young plants, if well grown, will yield from five to eight heavy spikes of flowers, which I always find larger on young plants than on old ones.—J. Groom, *Henham.*

Ricinus Gibsoni under Glass.—This distinct variety of Castor-oil plant, when better known, is sure to be much sought after, on account of its bright rich-coloured leaves, which are of an intense deep red, equalling, in that respect, the Amarantus or Iresine, that are now so much grown for the beauty of their foliage. The habit of R. Gibsoni is not nearly so strong as that of the green varieties, as it only attains a height of 3 or 4 feet, and has leaves only of medium size. It is sure to occupy a leading position in the sub-tropical garden next season, and it will be found most effective in combination with the spotted Abutilons, or any plant having light-coloured leaves of similar habit that will associate well with it. We have it now forming a group in the conservatory, intermingled with Abutilon, with which it forms a pleasing contrast, taking the place of Dracænas in a similar position. Excepting this Castor Oil, there was nothing available of a suitable character having richly-coloured leaves that could be used to give variety at this season of the year, and for which purpose it will be found a valuable acquisition. —J. Sheppard, *Woolverston.*

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Cattleyas true Epiphytes.—That Cattleyas are true epiphytes is proved by a Cattleya running on a cast iron pillar in an Orchid-house here. The roots—some foot or more long—adhere to the iron with as much tenacity as wood. The iron, moreover, is painted black.—Chevalier.

Is Boiler-water Injurious to Plants?—Will some of your readers kindly inform me if water drawn from boilers is injurious to plants? I have a boiler that heats 800 feet of 4-inch piping, and I am obliged to draw water from it for my stove plants. It smells badly, and I am afraid injury will arise from its use.—R. Wells, *Sydenham.*

When to Strike Poinsettia pulcherrima.—We propagate this truly splendid plant for winter decoration by means of cuttings put in in July and August. Each cutting is placed in a thumb pot and put under hand-lights on a slight bottom-heat. When rooted they are potted in 4 and 5-inch pots, and plunged in pits in bottom-heat. Plants thus raised are now in full flower, and have heads of floral leaves from 6 to 14 inches in diameter.—Richard Nisbet.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Roman and other Hyacinths.—Where the beautiful small flowered Roman Hyacinths are grown in considerable quantities, a second lot should now be placed in warmth to bring them into bloom. Where a good supply of flowers is required from the present time up to the close of the year these small free-blooming bulbs are invaluable, their natural early flowering habit enabling us to have them without much forcing; when put in heat, the temperature should not be kept too high, a common practice, but, nevertheless, a mistake, as it draws the spikes up weakly, a circumstance which not only injures their appearance but renders the flowers incapable of lasting nearly so long; a temperature of 55° at night, and 10° higher in the daytime, is sufficient. If a continuous supply of large-flowered Hyacinths, Tulips, and Narcissi are required until late in the spring, the latest roots should at once be potted; it is not well to defer this longer, as the bulbs are beginning to grow, and should not be longer kept out of the soil; when potted treat them as advised for those put in earlier, *i.e.*, place them in a bed of coal ashes, a few inches in thickness, filling up between the pots, and covering all over 5 or 6 inches in depth with the same material; they will succeed in the open air, or in a cold frame should such be at liberty; and in the latter they can be easily protected from frost. In potting bulbs, amateurs are frequently led into the mistake of using too large pots, by which nothing is gained, as the ability to produce strong flowers, or otherwise, depends upon the strength stored up in the roots before they are brought to this country, much more than upon anything that can be done in the way of unlimited root-room; pots, 6 inches in diameter, are quite large enough; in these the plants will have a much better appearance than in the deep unsightly ones that used to be in general request for bulb-growing, and which are even now often used for that purpose.

Mignonette, Cinerarias, and Pelargoniums.—Mignonette in pots for winter and early spring, should be well attended to, by keeping the plants as near the glass as they will stand, so as to afford them all the light possible; this is essential to prevent the growth becoming weak. Keep the shoots tied to neat sticks, using just sufficient to prevent the plants from having an untidy appearance, and yet not too formal; as the flowers begin to show give them manure-water, to which a little soot has been added, once a week. This will impart to the leaves a healthy green colour, similar to that which they have when well grown in the open ground, and which is so often absent in the case of plants grown in pots. Mignonette is one of the best plants that amateurs can grow for winter blooming, on account of the length of time it will last in flower, and its adaptability for mixing with flowers of other plants used in a cut state, for room decoration, its agreeable perfume being doubly acceptable at a season when sweet flowers are scarce. If the earliest sown Cinerarias have been managed in accordance with directions that have been given from time to time, some will now be pushing up their flower-stems. At this season they take a long time to open, and must not be hurried by submitting them to fire-heat, as is sometimes done, with a view to having them in bloom by the close of the year. This always has the effect of bringing the flowers up weakly, and destroying the leaves at the base of the plants, after which their appearance is spoilt. If the time recommended for sowing has been observed, and the subsequent management, such as it ought to have been, they will flower well and early, without being subjected to more warmth than that of an ordinary greenhouse. If their pots are well filled with roots, give them liquid manure every other time they are watered. Examine them frequently, to see that they are free from aphides, as, if these pests are allowed to get established, they will quickly spoil the plants. Cinerarias do not bear fumigating well, as the amount of smoke required to kill the aphides generally injures the leaves, more especially when these are large, resulting from being well and freely grown. It is much better to dip any that are infested in a pailful of tobacco-water, which should always be kept in readiness for any infested plant. If insects are thus summarily dealt with, as soon as their presence is discovered, they never can do much harm, and are kept in check with a fraction of the labour that is entailed when they are allowed to become numerous. Show varieties of Pelargoniums, as well as fancy, that were cut back after blooming, shaken out, partially dis-rooted, and placed in smaller pots, will now require moving into others a little larger, in which they are intended to flower. The size of the pots should be determined by the strength of the plant and the purpose for which they are required. Eight-inch pots are sufficient for the largest specimens. If wanted, Pelargoniums may be grown 5 feet in diameter in pots of the size just named; for ordinary decorative purposes, 7-inch pots will be large enough. Grow them in good loam, enriched with about one-fifth of well-rotted manure; to which add a moderate quantity of sand. In potting, ram the soil tolerably hard; if it is left loose the plants form comparatively few roots, and run a great deal into leaf, instead of flower, in the spring. Water them sparingly through the winter, never giving it until the soil has become almost dry; and then in sufficient quantity for it to make its appearance through the bottom of the pots. Keep the shoots well tied out, and the plants in the lightest situation available, elevated close to the roof glass, with a night temperature of from 40° to 45°.

Fuchsias, Calceolarias, Cyclamens, and Camellias.—If the pots of Fuchsias that were struck in August for flowering the ensuing spring are very full of roots, shift them into others an inch larger; if they are growing fast, nip out the points of the leading shoots, so as to induce the formation of side growths. See that the leaves are free from red spider, or they will turn yellow, and fall off, spoiling the beauty of the plants. If these spring-blooming Fuchsias can be kept through the winter in a night temperature of 48° or 50° they will be all the better, as, so treated, they will make more growth and flower earlier than they otherwise would do; but if there is no convenience for keeping them in this way, they should be placed at the warmest end of the greenhouse. Herbaceous Calceolarias sown during summer must be shifted into larger pots as those they occupy get filled with roots; for, if allowed to become pot-bound, they will not grow freely afterwards. They require a more open description of soil than Pelargoniums; in addition to manure they should therefore have a fifth part rotten leaf mould; the soil, too, should not be made so very hard in the pots, but only just pressed moderately firm with the fingers; the plants should also be kept much more moist at the roots than would do for Pelargoniums. Shrubby Calceolarias, which are so useful for flowering in pots, and, when well managed, last so much longer in bloom than the herbaceous kinds, should now receive attention; such as have grown to a considerable size, and are intended for coming into flower early in spring, ought to be placed in the pots in which they are to bloom; if the plants are large, they will bear shifting into 8-inch pots, using good rich loam, and treating them generally as advised for the herbaceous sorts. Primulas now coming into flower should be kept as near the glass as possible without touching it, as, thus situated, they will be able to bear the requisite quantity of water without being so subject to damp off as when further from the light. Give liquid manure to the earliest flowering plants every other time they need water; from 40° to 45° is a suitable heat for them at night during winter; for, thus kept, they are not nearly so liable to rot off at the collar as when grown in a lower temperature. Cyclamens will also flower satisfactorily in a house in which a similar temperature is maintained; as they will now be commencing to push up their flowers, they will be benefited by all the light that can be afforded them, for, when kept far from the glass, the flower stems often rot off at the bottom before the blossoms open. Amateurs, whose greenhouse accommodation is limited, will find it much better to confine themselves to the cultivation of a limited number of plants, of which the foregoing are amongst the best, than to attempt to grow a large collection, the individual members of which need treatment so different from each other as to make them difficult to manage unless where there exist several houses, so that all can be treated according to their requirements. Before the most forward Camellias that made growth early in the season show signs of opening their flowers, the plants should be gone over and cleaned. Where scale exists—either white or brown—it should be removed with a tooth brush, and the whole of the wood and leaves (both upper and under surfaces) should be sponged so as to leave them quite clean; nothing looks worse, either on the plant or amongst cut flowers, than a beautiful Camellia bloom backed up by dirty foliage, and if this thorough cleansing is not carried out before the flowers open they are sure to get injured during the operation. If the plants are required to open their blooms sooner than they would in an ordinary greenhouse temperature, they may be kept a few degrees warmer, but nothing approaching to forcing in stove heat must be attempted or the buds will drop off prematurely; and, where any extra warmth is applied to them, the atmosphere must be kept sufficiently moist or similar shedding of the buds will be the result.

Flower Garden and Pleasure Grounds.

The rainfall during the greater part of the present month has been greatly in excess of the average, and, on heavy land, the soil is still in a very wet condition. In all cases, however, where this is not too much so, and while the weather continues open, planting operations may still be proceeded with. In planting ornamental trees of all kinds it is necessary to take into consideration the habit of growth and the form or outline which the various specimens are likely to assume when they arrive at a partially or a fully-developed condition in order that they may be so arranged as to suit the positions they are intended to occupy. The dimensions to which each tree will be likely to attain in the course of a few years should also be considered. Many instances may be found in which such trees as the Cedar of Lebanon have been planted so near to the mansion or dwelling house as to have the effect of completely dwarfing the building. Similar mistakes are also being made in reference to the Wellingtonia and the Douglas Fir. Trees which are likely to attain an altitude of, say, 50 or 60 feet in the course of twenty or thirty years should not be planted nearer to a residence than 100 or 150 feet; therefore, wherever grounds are circumscribed in extent trees of smaller growth should be used. Amongst the many ornamental plants which do not attain gigantic proportions may be recommended the Cupressus Lawsoniana, Cryptomeria elegans, Libocedrus decurrens, Thujopsis borealis, Thuja Lobbii, Thuja elegantissima, golden-striped Yews, variegated Hollies, &c.; while even Picea nobilis, P. lasiocarpa, and P. Pinsapo, together with Pinus insignis and cembra, all of which seldom attain great dimensions. Among meritorious varieties of deciduous species the beautiful Taxodium distichum should not be overlooked. The Acer Negundo variegatum, the Tulip tree, Rose Acacia, the Cornelian Cherry, the Maiden-hair tree, and the various varieties of Cratægus, such as the double and the single flowering scarlet and pink Thorns, are all well deserving of attention. Pelargoniums and other soft-wooded bedding plants, likely to be injured by a low temperature, should now be removed, if possible, from cold pits, and placed in structures to which fire-heat can be occasionally applied, with the view of keeping out frost, as well as for the purpose of driving off damp, which is almost as fatal as frost. Calceolarias, Verbenas, and other species less likely to be affected by damp, and capable of withstanding a considerable degree of frost, may, during most seasons, be wintered in cold pits, with the necessary protection of bast mats, straw, or other covering during severe weather.—P. Grieve, *Culford, Bury St. Edmunds.*

Indoor Fruit Department.

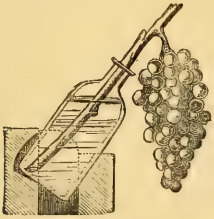
Vines.—When the earliest-started pot Vines produce young leaves do not increase the bottom-heat in which they are placed, but raise the day air temperature to 65°, and at night it should be 58° or 60° when the weather outside is mild. As soon as the shoots are 2 inches long the canes should be suspended nearer the roof than they have been during the time when they have been breaking. Admit a little air on all fine days, and on all such occasions the Vines may be well syringed when the ventilators are finally closed. If the pots are placed near hot-water pipes the soil in them will become quickly dry when strong firing has to be resorted to, and they should be looked over daily and well supplied with clean water whenever indications of drought show themselves. During cold nights, when much fire heat is used, the pathways and other surfaces should be kept moist to prevent dry air from injuring the tender shoots. A second batch of pot Vines may be got in readiness to place in heat about the first of next month; clean and surface dress them as was directed in the case of the others. The different varieties of Black Hamburghs, which include the Frankenthal, Dutch, Mill Hill, and Victoria kinds, are those which will still give most satisfaction as early black kinds, and Royal Muscadine, Foster's Seedling, and Buckland's Sweetwater among white varieties. Later varieties take longer to gain maturity than those just mentioned. Inspect Grapes which are being preserved often and remove all decaying berries, a matter which cannot be too well attended to at present. Foliage shed by late Vines should be swept up at once, and, where fruit is hanging, the leaves may even be pulled off before they drop, which obviates any harbouring of moisture.—J. Muir.

Hardy Fruit.

To those whose gardens are in cold localities, and who value Figs, I repeat the recommendation made in last Calendar, viz., to protect the trees forthwith with hay-bands, as, more frequently than not, when the crop is a failure, the mischief has been caused in the autumn, by the early frosts nipping the embryo fruit. Near the sea-coast, and in two or three of the more southern counties, Figs winter safely without protection. In the Isle of Wight they need none, and the trees make the most fruitful growth possible, the fruit attaining such a large size, that the wonder is no one there has as yet made them a speciality of culture for market purposes, for assuredly they would pay well. Planting being so much in arrear, owing to the inclement weather which we have had, if it now be fine, all hands should be concentrated on it, as fruit trees of every kind do best when planted in autumn; the reason why this happens must be plain to the most casual observer, inasmuch as the trees get established before the drying winds of March or droughts of early summer set in. As to the various aspects best suited to the different kinds of trees, the following is my own experience in the matter, viz., the south for Peaches (in this locality the west is almost equally good), the west for Pears, Apricots, and early Cherries, the east for Plums, the north for Morello Cherries, Currants, and late Gooseberries. Black Currants will grow and do well under the shade of a north wall, but Red and White Currants like a more open situation, though they do tolerably well in the shade. Gooseberries will also thrive in a north exposure, or under the shade of trees, but, of course, they do best in open quarters. Pruning and nailing should be advanced as opportunity offers, it being desirable to get as much of such work done as possible at this comparatively slack season. When the ground is not in a fit state for such work, orchard trees may be pruned, well thinning out and shortening back the longest spurs, and, with a pruning-saw, removing all badly-placed branches. Inferior kinds should be entirely cut over—indeed, quite back, and re-grafted with good kinds in March. If any of the trees are infested with Lichen, rub it off, and paint the stems with a mixture of lime, soot, and cow-dung. In wet weather, labels may be prepared for properly naming the trees, stakes made for newly-planted trees, and new shreds cut, and old ones cleaned, ready for use on the advent of finer weather. Strawberries in pots for forcing, if not yet stored away, should be so at once; light sheds, orchard-houses, late Peach or Fig-houses, or cold pits, where they can be kept free from frost and heavy rain, and yet have abundance of air, are the best places for them. The unnatural plan of building them in piles, with ashes, should never be thought of, unless it be desired to have the roots frozen to death, or the crowns dried up from want of moisture.

Preserving Grapes in Bottles of Water.

My latest experience of preserving Grapes in bottles of water is, as it always has been, most satisfactory, the only exception being that I have discontinued bottling Hamburghs, as these do not keep well in that way, but Muscats, Trebbianos, Alicantes, and Lady Downes keep perfectly. The last-named kind, cut on the 9th of January this year, kept in good condition till the 12th of June, on which date the last were used, and they were but little deteriorated in flavour. At the present time we have as fine a houseful of Lady Downes as anyone could desire to see, and they will all be cut and bottled about the first week in the new year. The conditions necessary to ensure good preservation, are thorough ripeness, evenness of temperature (which should range between 40° and 45°) and a comparatively dry atmosphere. The accompanying is an illustration of the French mode of fixing the bottles; but on this plan I think we have improved at Heckfield, by fixing the necks of the bottles in a horizontal rail, and giving them a greater inclination, so that the bunches have plenty of room to hang clear of both bottles and rail. So many have failed to keep Grapes on this plan that I am tempted to ask the following questions:—First, were the Grapes thoroughly ripe before being placed in the bottles? Secondly, was the house suitable, *i.e.*, dry and frost-proof, without the application of constant artificial heat? Unreasonable fluctuations in temperature induce decay, especially if the Grapes were not fully ripe when bottled. On these points hangs the whole matter of good or bad preservation. Complete ripeness is easily effected, but a proper house is a much more difficult matter. It should be built with hollow walls, to neutralise the effects of both heat and cold; and, though much fire-heat is undesirable, as it causes the fruit to shrivel, provision should be made for its application to expel damp when required—the door and ventilators being wide open while the heat is being given. The most important point to observe when cutting the Grapes is to see that the whole extent of wood above the bunch be left intact, and not cut off as in the illustration. The water absorbed by the wood is by this means partially diverted from the fruit into the branch beyond it, thus preventing deterioration in flavour. If charcoal is put in the water when the bottles are first filled, changing the water is never required, and in such a room as that just recommended evaporation is so trifling that an addition once or twice in the season will suffice to keep the bottles full. Given the above conditions, and Grape rooms would soon become as common as other fruit rooms, because the Grapes would be certain to keep.—W. Wildsmith, *Heckfield.*



THE FLOWER GARDEN.

MORE NOTES ON LILIES.

As the smallest notes on Lily growing appear to be generally appreciated, I trust a few, the result of my hitherto limited experience, may be of some use. Let us begin with the commonest and most ill-used of all Lilies—the common white Lily—candidum. We have here a large quantity of it in very big clumps; but, from some cause, these have never succeeded as they ought to have done, only every fourth or fifth maturing a flower-stem. As soon as they had done flowering, when the stems were beginning to get dry in the end of August, I took up all these clumps and separated the bulbs. I found then that the greater quantity of bulbs had no roots at all; in fact, wretched little slugs had eaten them off close to the bulb as fast as they grew. After separating and cleaning each bulb I put them into a tub of soot and water for two days to kill any embryo slugs that might have escaped my notice. I then planted the whole in a row 5 inches apart each way and 4 inches deep. Half the row was strongly dressed with soot and half with lime. Another row had no lime or soot except what they retained from the tubbing. I took up some of the last row the other day and found my friends the slugs calmly browsing on the newly-formed roots as calmly as if soot was not an infallible preventive against their ravages. On lifting those dressed with lime I found the bulbs firm and growing fast with long fleshy roots. It is certainly marvellous how quickly these Lilies reproduce themselves; each scale which has been injured in separating the bulbs has now at its base a small offset the size of a Cob nut. Some bulbs of L. chalcedonicum that were left in the potting-shed have produced from twenty to thirty tiny offsets whenever they were bruised. I think that there can be no doubt that the time to transplant all Lilies is directly the stems begin to wither before a single new root has formed. People make a great mistake in re-potting their Lilies in spring, when the soil is full of new roots, instead of in the autumn, when there is nothing but old roots in the pot. I have over 500 bulbs of candidum, and the effect of 500 flower-spikes in a long row is something splendid; my long border last summer seemed like a white stream of foam flowing down the garden. Mr. Ruskin is coming to Bingham next spring, and I shall get him to time his visit for the flowering of these white Lilies. I fancy the transplanting will make them at least a week later; and this is just what is wanted to escape the early frosts, when the flower-stem is only a few inches high. Of the rarer kinds, I have perhaps done best with the white Martagon, which is quite a Lily for the open border. Two years ago, I purchased a small bulb of this, about as big as a small Walnut. It forgot to flower last year, but did so twice this year, producing two good spikes. The flowers are creamy-white, and more fleshy than the common purple Martagon. I am going to grow all border Lilies, such as the tigrinum, Martagon, chalcedonicum, monadelphum, and others, in soil from the earth-closets, which is, I think, the very thing for such as can stand a strong soil. Mine is a very strong loam. In wet weather it is little better than clay, and in dry weather it is worse than baked brick. So I have to make an artificial soil for all my rarer herbaceous plants in the open border. I have done well with speciosum out of doors, but I prefer a sandier soil. For the varieties of speciosum I have hitherto used soil from the interior of Willow trees, which is an excellent substitute for peat. I never saw the varieties of speciosum so grand as in the Newton Nurseries, Chester; the soil there appeared extremely light—almost too sandy for auratum; excelsum was fully 7 feet high, and the bulbs I have received of it are enormous. This Lily, otherwise called testaceum, or Isabellinum, ought to be more commonly grown; for, in shape and colour, it is exquisite. After carefully looking at it, no one can doubt its being a hybrid between chalcedonicum or pyrenaicum and candidum. It has the same shaped buds as candidum, but hanging down like chalcedonicum. The flowers are in form like the latter, but have the mid-rib of the former. The colour is something between the two—cream, flushed with red, and slightly marked with the marks of chalcedonicum. Can any reader of The Garden kindly tell us whether this Lily is now grown in China or Japan? Tradition says it was imported from Japan;

but how can it be a hybrid, if neither of its parents are grown in Japan. The chances of a hybrid seed being perpetuated, unless under a gardener's care, are so small, that one can only believe this Lily is a hybrid of English origin. It seems to me an extraordinary thing that so little should be known about the origin of this, but it gives hopes to us hybridisers when we consider that neither of the supposed parents are more than 3 feet high, and yet the offspring grows fully 7 feet. If from Pelargonium inquinans and P. zonale have been raised the magnificent florists' flowers now common in every garden, what ought we to expect when we begin to hybridise with such Lilies as giganteum, auratum, or tigrinum splendens! The difficulty about raising hybrid Lilies is, that too many seeds are apt to form in the pod, so that none of them properly ripen. This has given me a good deal of trouble, and I should be thankful to anyone for advice on the subject, and also for a list of such Lilies as make plump seeds which will germinate freely. Has the common candidum been known to seed in England? I suppose that if one wants to increase the size of bulb in any Lily the best way would be to break off the flowering stem as soon as buds are forming. I have observed this to be the case with pyrenaicum, in which variety, if anything injures the flowering stems, the bulbs become enormous. Probably we should not hear of nine-tenths of imported auratum bulbs completely disappearing in three years if they were prevented from flowering the first year by breaking or heading down the stems. I have lately been planting auratum bulbs, 6 inches deep, in sandy leaf soil, with a good drainage placed 2 feet deeper. These clumps of three bulbs each, are about 4 feet apart, and in the middle of a border, the whole length of which I have laid 3-inch piping, loose-jointed, 3 inches under the surface. I can turn a tank of water down this piping, and so water all the Lilies at once without watering the top of the ground. Close to this tank is a pump from a land-spring well to fill it with. I have made a small tank in the border, about 8 feet long, 18 inches deep, and 4 feet wide, with cemented sides. This tank is filled with leaf soil, and will always be kept in a swampy state from the droppings of the pump. There is no indication as you pass the border of there being a tank underneath, but I nevertheless hope to grow all the American swamp Lilies, such as superbum or Humboldti, as well as they grow in their native habitats. Since writing the above I have searched in the Grass for any scales of the white Lily that were lost when we pulled them to pieces. I found a good many scattered about, and nearly all had on them bulblets of the size of a large Pea entirely formed since the end of August, and that, too, when merely protected by long Grass. I have this afternoon been digging up in a neighbouring nursery about three dozen bulbs of auratum. Many of the bulbs were planted late and flowered indifferently; but, on taking them up, we found some of them had as many as twenty tiny offsets. The thirty-six have given me more than 400 offsets, some the size of a Cob nut and some about half as big as a Pea. Will any authority on Lilies kindly tell me how long such offsets take to become flowering bulbs. I never shall forget seeing, for the first time, Lilium Krameri in bloom last July at Tottenham. I went down there on a day when the rain was falling in torrents. It was too dark to paint, so I wandered about killing time by seeking things worth seeing. Among a lot of other Lilies in the open border was a bloom of Krameri, and I was fairly surprised by the depth of colouring. The bloom was a very indifferent one, but reminded me, in its shape, more of longiflorum than auratum. I expected to find a washed-out purple tinge, like that wretched fraud the rose-coloured Lily of the Valley, but here was a veritable blush Lily, as deep, it seemed to me, as the old Provence Rose. I have been unable to procure a bulb of the true Krameri roseum larger than a small Walnut, and can only suppose there are no bigger bulbs. Perhaps Mr. Wilson will enlighten me. I must acknowledge my gratitude to Dr. Wallace for his admirable pamphlet on the "Cultivation of Lilies," which, with Mr. Elwes's "Monograph," will do much for the general cultivation of Lilies. Besides the commoner kinds, I have Krameri, Brownii, eximium, Washingtonianum, tigrinum splendens, giganteum, auratum, vars. Diadem, Virginale, macranthum, and pictum, Martagon album, dalmaticum, and the true Catesbæi, all of which I mean to use for the purposes of hybridisation. I shall be much obliged to Mr. Barr, or Mr. Wilson, or to anyone who has experimented in crossing Lilies, if they would kindly give us hints. There are three Lilies that should be common in our borders, viz., Martagon album, dalmaticum (Catani), and monadelphum. Has anyone done really well with Washingtonianum, and does purpureum differ much from it? FRANK MILES.

Bingham, Notts.

CULTURE OF ALSTROMERIAS.

CONSIDERING the great beauty of these, and their general usefulness in the form of cut flowers, it is somewhat surprising that they are not more generally cultivated than they are, as it is only occasionally one meets with them even in large gardens. This may in part be accounted for from the difficulty there is in transplanting them successfully, and from their requirements as to soil and situation being so little understood. Being somewhat tender, it is useless attempting their cultivation, unless the bed or border intended for their reception is properly drained, so as to add to the warmth of the soil, and prevent the tuberous roots suffering from an excess of moisture during winter. The best place in which to grow them is a south border, or along the front of a wall having a similar aspect, where, if the soil is not naturally light and dry, it should be made so. The best plan is to thoroughly prepare a bed for them at the outset. This should be done by digging out the whole of the soil to the depth of 3 feet; and, in order to secure thorough drainage, 6 inches or so of broken brick, or some other good draining material, should be spread equally over the bottom of the border. Before re-placing the soil, shake over these a good coating of half-rotten leaves, or short littery dung, so as to prevent the soil from running among the interstices of the bricks, and thus stopping up the drainage. If the natural soil is at all stiff, a portion of it should be wheeled away, and an equal quantity of leaf soil, or other light vegetable mould, substituted; to this a barrow-load of sand should be added. The whole should then be thoroughly incorporated together previous to filling in the bed or border. The plants should be procured from the nurseries in pots, as they rarely succeed from divisions; and, once planted, they should never be interfered with. In planting, they should be placed in rows about 18 inches apart, and 1 foot from plant to plant. If planted any time during the winter, they should be placed from 6 to 9 inches deep, so as to keep them out of the reach of frost; and, as an extra precaution, a few inches of half-rotten leaves should be shaken over the surface of the soil, so as to keep all safe. Should there be any difficulty in obtaining established plants in pots to start with, seed may be had; and this should be sown at the same distance apart as advised for the plants. The seeds being nearly as large as those of Peas, they may be sown 2 or 3 inches deep; and, in order to ensure a regular plant, three or four seeds should be placed in a patch. When up, the surface of the soil should be kept gently stirred, so as to keep down weeds and accelerate growth. If well treated, they will begin to bloom at a year old, and will continue increasing in strength and beauty every season, provided they receive proper attention, and are not disturbed. When grown in masses in this way they are strikingly beautiful, as every stem furnishes a large number of flowers, and as they vary much in their colour and markings, they make a gorgeous display. While growing and blooming they should have an occasional watering, as, on account of the liberal drainage required to keep their roots in a healthy state during winter, they would otherwise become too dry, and ripen off prematurely. A good mulching of old Mushroom dung or leaf soil is of great assistance to them while in bloom. When going out of flower the seed-heads should be carefully removed, otherwise the plants are apt to become exhausted, as almost every flower sets, and therefore such a load of seed should not be permitted to ripen. In removing the pods, care should be taken not to shorten the stems or reduce the leafage in any way, all of which is necessary to ripen the tubers and form fresh crowns for the following year. The stems should, therefore, not be cut down but should die away naturally. Anyone having deep light sandy soil resting on a dry bottom may grow these beautiful flowering plants without any artificial preparation whatever, all that is necessary in that case being to pick out a well sheltered spot, and to give the surface a slight mulching on the approach of severe weather. No trouble is involved in staking and tying, as with most plants, for the stems of these are quite strong enough to support themselves, unless in very exposed situations. Independently of the gorgeous display which they make when growing, they are quite worth cultivating for supplying cut flowers, a condition in which they last very long in perfection.

J. Sheppard.

Hyacinths in Beds or Borders.—These should now be planted. They do well in any light garden soil; but turfy loam, with a plentiful admixture of sand and well-decayed manure is, perhaps, the best of soils for them; and, if the natural soil be so stiff and adhesive as to require modifying, these are the materials that should be used. The bulbs should be planted with their crowns 4 inches below the surface, covering the ground after planting with 2 inches of loose pulverised manure as a protection against frost. Hyacinths planted out of doors seldom require any water; and, if the soil or situation be at all damp, they will do better if the soils in the beds or borders be raised an inch or two above the surrounding level.—W. Paul.

Lilium Wallichianum.—I am pleased to hear that this fine species is again in cultivation. I believe I am right in saying that it first flowered in the Botanic Gardens, Glasnevin, in August, 1850. It was introduced to the Dublin Garden by Major Madden, and was described at the time as being similar to L. longifolium and L. eximium, but as having very narrow leaves. It next turned up in 1852, in Messrs. E. G. Henderson's Nursery, at St. John's Wood, but curiously enough, the flower is described as pure white, while in the plant recently re-introduced, the bases of the segments are creamy-yellow, but this is no greater variation than is to be observed in nearly all Lilies. It is a noble species, with a habit somewhat like that of L. phillipinense, but the flower is larger, the segment being curiously curved or volute, like a ram's horn.—B.

Hybrid Gladioli.—"F. W. B." (see p. 385) may be quite right as to the name Alice Wilson, my statement being made from memory only. There were, however, not one but two hybrids of different colours shown on the occasion referred to by Mr. Standish. G. cruentus is certainly not so robust and luxuriant as Mr. Bull has figured it; on the contrary, it is rather a weak constitutioned plant, and I am, therefore, led to suppose that hybrids from it would not be long-lived. Gladiolus dracocephalus, purpureo-auratus, formosus, and Eckloni, should be tried, and let us hope that ere long G. Papilio will be re-introduced, and also the remarkably beautiful G. purpureus, a kind especially valuable for hybridising.—Max Leichtlin, *Baden-Baden.*

Use of Ropes in Garden Designs.—The remarks (p. 408) respecting the use of a rope for forming the outline of flower beds are both appropriate and judicious. I have also seen it used effectively in setting out new roads and walks, and likewise in the formation of boundary lines for new plantations—anywhere, in fact, where easy flowing lines are desired. Suppose a new walk has to be made through a wood or plantation, or in any other part of the grounds, the designer takes one end of a rope about 20 yards long—an ordinary waggon rope will do—in his hand, and moves in the direction in which the new walk is to be formed with the rope trailing behind him. A couple of men, each with an armful of sharp-pointed stumps or short stakes follow, and by the side of the rope place a stump every few yards apart as it trails along in its serpentine course. Anyone may convince himself by a trial that it is impossible to obtain, by any other means, a more natural and easy arrangement, and by its use much time and trouble are saved. —E. Hobday, *Ramsey Abbey.*

Gladiolus Culture in a Nutshell.—Messrs. Kelway, of Langport, in their new catalogue of Gladioli give directions for cultivation, which have the merit of conciseness at all events. *For Exhibition Purposes.*—Select an open situation. In October trench the soil 2 feet deep; use a liberal supply of old hot-bed or cow-manure, well mixed with the soil. Commence planting the first week in March, and at intervals of a fortnight until June. Plant in beds of three rows, placing the bulbs 1 foot apart and 3 inches deep. Stake as soon as the plants are sufficiently high, and mulch over the ground with half-rotten manure. As soon as the plants show bloom, we have found manurial stimulants beneficial for the complete development of flowers. *For Flower Garden Decoration.*—Plant during March and April in borders, in clumps of three or five, at intervals of 4 to 6 feet, between Standard Roses, Dahlias, &c., or in masses in the centre of large beds, or between Rhododendrons, Azaleas, &c. *For Pot Culture.*—Pot in 6-inch pots in March, using one part decomposed hot-bed manure and two parts rich loam, with a little river or silver sand under each bulb; plunge the pots in the soil, in an open situation, and give a liberal supply of manure-water in dry weather; as soon as the blooms commence to show colour, put them into the conservatory or greenhouse, where they have a brilliant effect arranged between Ferns, fine-leaved plants, &c. The bulbs should be taken up as soon as the leaves begin to fade; gradually dry them, clean them, put them into proper bags, and place out of the reach of frost.

Fallen Leaves.—I am no advocate for untidiness, but I would strongly endorse the advice given by your correspondent "A. D." (see p. 428). Dead leaves and dead stems are the food and winter shelter that Nature provides for plants, and it is injudicious to deprive tender plants not only of their natural food and shelter, but even to leave their tender hearts more exposed in winter than they were in summer. So convinced am I of the value of fallen leaves, that as soon as they are down I like to secure them by placing over them a coating of cocoa-nut refuse. This makes all snug for the winter, and looks neat. I do not mean that I do this everywhere, but in choice spots, such as the rock-garden, beds of choice plants, &c. In the spring, the plants shoot through leaves and cocoa-nut fibre, rejoicing in both. At this season I would again strongly recommend the use of cocoa-nut refuse. I know of nothing to equal it for a winter mulching. It forms a cushion which prevents the winter rains pounding the ground, and is an excellent protection against frost. It seems, indeed, to have a peculiar affinity to frost, for it soon gets quite frozen through, and you may lift the mass bodily like a mat and find the ground soft underneath; and when the frost goes, it thaws very slowly—much slower than the earth, and this, too, is a matter of very great importance in the winter preservation of plants.—H. N. Ellacombe, *Bitton Vicarage.*

—— Except on walks or pleasure grounds near the mansion, where tidiness is necessary, all fallen leaves should be left to lie and decay, for they furnish to the roots of trees the shelter and food which they require for healthy growth. I see in the young plantations here, especially where Oaks and other hard-wooded trees have been planted on ridges, that where the fallen leaves have lodged in the bottoms of the ridges and decayed there, the young trees are healthier and grow faster than others not so circumstanced. In shrubberies, too, where the tree leaves are left to decay on the surface of the ground, with a little soil sprinkled over them to keep them from blowing about, the growth of all kinds of shrubs is greatly accelerated, and more especially in Rhododendron beds or clumps.—William Tillery, *Welbeck.*

Transplanting the Pampas Grass.—M. May, writing in the "Flore des Serres," says he has often heard people complain of the failure of their efforts to transplant Gynerium argenteum—that they have almost invariably lost all their plants. This may, and, indeed, very generally does, happen when the plants are moved in the autumn, winter, or early spring; but, if the plants be taken up in May or June and set in again at once, and if, above all, a copious watering be given and repeated as often as is necessary, we may be pretty confident of the result. In the year 1872 a friend of mine took up and re-planted, at the beginning of June, some thirty strong plants of Gynerium, and not only did they thrive afterwards but flowered as though they had not been disturbed at all.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

The Chinese Yam as a Climber.—To your description of this plant (see p. 436) you may add that it is a good hardy perpetual climber. It has very pretty foliage, and will clasp a pole without any help.—H. N. Ellacombe, *Bitton Vicarage.*

Myrsiphyllum asparagoides (see p. 448).—I have had this for some years as a hardy climber. It is most graceful, and flowers and seeds freely. It does not require a wall.—H. N. E.

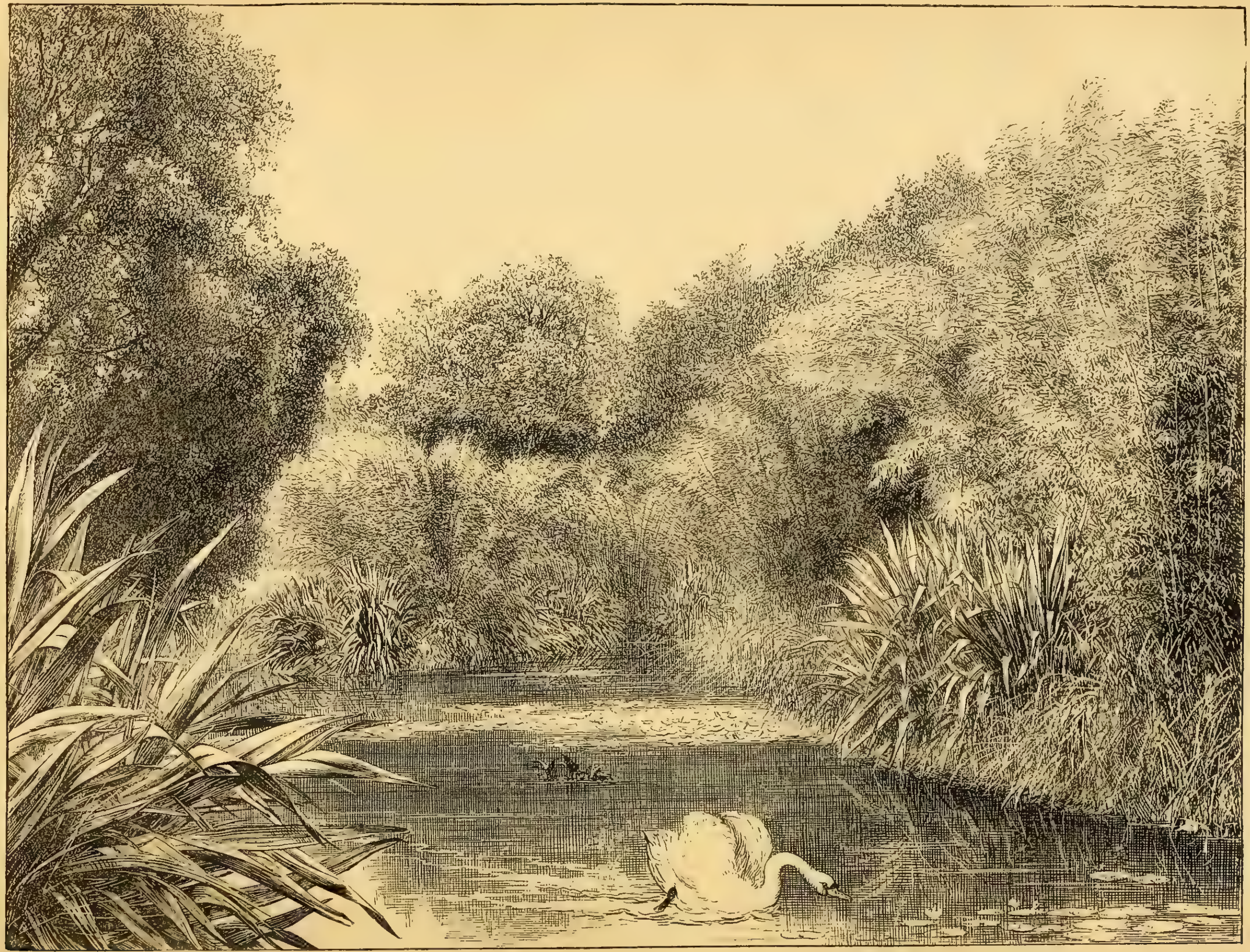
Anemones in Succession.—Among the most useful plants for spring flower gardening are the double scarlet Anemones, and it is a colour difficult to obtain. To have a good show of these, it is recommended to plant half the tubers in October and half in December, the later ones being planted between the early ones; this gives a long succession of bloom.—M.

Tweedia cœrulea.—I think many of your readers would be pleased with this plant if they would give it a trial. I have little doubt that it would be quite hardy in most parts of the south of England. Its colour is a most lovely sky-blue, of a most unusual shade. I planted one out in the spring; it has flowered well, and is now furnished with its very curious seed vessels. I shall leave it out for the winter.—Henry N. Ellacombe.

Dividing Primroses.—Choice kinds, both double and single should now be lifted, or if in pots they should be shaken out, the crowns divided and re-potted in small pots. These should then be placed either in a cool house, or in a frame for the winter. Weak crowns may remain in these pots all through the ensuing summer, but larger ones will doubtless bear division again in the spring after they have done blooming. Frequent propagation is beneficial, as by that means the bane of Primroses, a long woody base at the root, is not allowed to develop. The more roots issuing from the immediate base of the foliage the better.—D.

GARDEN VEGETATION AT FOTA.

The chief interest in the gardens at Fota arises from the half-hardy trees and shrubs from Japan, New Zealand, Australia, and other countries rich in beautiful vegetation, that have been collected there; and foremost amongst these stand the hardier kinds of Bamboos (Arundinaria falcata or Bambusa gracilis), which were planted out about twenty-five years ago, and which seem to have grown equally well as in their native habitats, clumps or roots of them having extended from 15 to 20 feet in circumference, from each of which spring over 400 canes, that reach a height of 25 feet. Other kinds of Bamboos have also recently been added, which, judging from their growth, are likely to thrive equally as well as those just named. Among these may be named Bambusa viridi-glaucescens, B. nigra, B. aurea vera, B. Simonii, B. mitis vera, and B. violascens. These Bamboos grow on small islets in low-lying ground several feet below the tide, and were, on one occasion, inundated with sea water for several days without receiving any apparent injury; the land in which they are growing has, in fact, been reclaimed from the sea, and consists of stiff mud or "slob," with a slight admixture of sea-shell. Of the consistency of such soil some idea may be formed when it is said that the same kind of material is made into inferior kinds of bricks. Thus situated the Bamboos have both flowered and ripened seeds this season, from which numbers of seedlings have sprung up. The seeds resemble those of the common black Oat, but, unlike them, take a long time to germinate, some two months elapsing before they come through the soil, even in a temperature of 70°. Growing amongst the Bamboos, and shaded by their drooping canes, are specimens of the tree Fern (Dicksonia antarctica), which seem quite at home in this part of Ireland. They have grown without protection for these last two years, and have, this season, each made from 16 to 20 fronds. Around the margins of the Bamboo islets are planted several kinds of Ferns, such as Woodwardia radicans, Balantium Culcita, Osmunda regalis, and others; also the variegated forms of New Zealand Flax (Phormium tenax variegatum), P. Colensoii, P. Veitchii, Tritoma Uvaria, Irises of various sorts, and blue African Lily (Agapanthus). These all lend a charm to the place, and, associated with the beautiful little aquatic Aponogeton distachyon, have a pretty appearance. The last has been flowering continually since February last, and seedlings of it have sprung up this season by thousands, in different parts of the pond, many of which have flowered and are still in flower. Near the edge of the pond, but growing in the water, are numbers of the Calla æthiopica or Trumpet Lily, which is quite hardy here; many plants of it throw up from fifty to sixty flowers, which, when backed up by graceful green Bamboos, have a striking appearance. Growing around and near the pond in question, are hundreds of fine clumps of New Zealand Flax, which, like the Bamboos, are fond of a stiff moist soil. Indeed, it may be said to be half an aquatic, many of the finest plants of it having their roots and bases under water. Plants of Pampas Grass associate well with this Flax, and numbers of them at Fota produce flower-stems 15 feet in height; their silvery plumes just now are strikingly pretty, hardly any two of them being quite alike. Growing luxuriantly in this damp spot too, we noticed Arundo donax, and its variegated form, A. conspicua, Dracæna australis, Dasylirion longifolia, Melianthus major, Aralia Sieboldii, the singular-looking Colletia horrida, and many other interesting plants. Amongst trees which thrive well here may be named Cryptomeria japonica, fine specimens, some 50 feet in height, and beautifully furnished with branches to the very base; Sequoia sempervirens, about 60 feet in height, with a trunk 8 feet in circumference; different forms of deciduous Cypresses, which thrive remarkably well in the wet soil of Fota, the roots being under water the greater part of the winter. The Benthamia fragifera, on a little higher ground, grows here as luxuriantly as in Cornwall, and it has this season been covered with large straw-coloured flowers, which are succeeded by pretty Strawberry-like fruit that bend the branches to the ground, so thickly are they loaded with it. The finest specimen of this plant here—an isolated one—is about 30 feet in height, and has a spread of branches of over 100 feet in circumference. Colletias, at Fota, reach a height of 10 feet, and measure as much through. Hakea pugioniformis is another curious shrub, which, like the Colletia, grows well in that part of Ireland, and flowers every year, reaching a height of about 10 feet. Magnolias, of the grandiflora type, form fine trees, some of which are 20 feet in height. The Loquat (Eriobotrya japonica) is also quite hardy even as a standard, but the finest plant at Fota is one on a south wall; it is about 12 feet in height, and would have covered a much larger space had room been afforded it. Of Eucalypti we noticed several species, one of which is about 60 feet in height, and has a trunk about 8 feet in circumference; these flower every year, but do not ripen seeds, although hard seed-vessels are formed. Olives, also, succeed here out of door, Olea excelsa forming a beautiful glaucous-leaved shrub, about 12 feet in height; the Myrtle-leaved Olive is also an interesting shrub, with small dark green leaves; the old-fashioned glaucous-leaved Acacia affinis and Clianthus puniceus, both grow here in the wildest luxuriance, and flower most profusely every year, as do also Myrtles, Camellias, and Eugenia Ugni, the first being about 25 feet in height, and the last, just now quite scenting the air with the odour of its ripe fruit, which is useful for dessert. Arbutus Unedo forms a wide-spreading tree, with branches covering an area of 140 feet in circumference, and, at this season, quite laden with fruit. A. Andrachne is about 25 feet in height. This, like the Eucalyptus, sheds its bark, that of the Gum tree being white, and that of the Arbutus red, which gives them a quaint look amongst other trees. Of Evergreen Oaks, the trunks, in some cases, measure as much as 10 feet in circumferance several feet above the ground; and the branches cover a circle of 60 yards. The variety called Fordii, forms a compact handsome bush, and is quite distinct from all others. The Cork Oak grows here, but does not form such a fine tree as other kinds, its bark being its only attraction. Among the Pine tribe, P. insignis is the finest, its trunk at the base being 8 feet in circumference; it throws out large branches horizontally. It attains a height of 60 feet, and measures nearly as much through the branches, often making 4 feet of growth in a year. Many of the Mexican species are hardy here, such as P. Montezumæ, P. Teocote, and others. Among the Silver Firs, which seem quite at home here, Picea bracteata occupies a prominent place; and, unlike many others, it sustains no injury from spring frosts. P. Pinsapo and P. cephalonica form dense pyramids, about 80 feet in height, the latter having borne cones this season. P. nobilis is about 45 feet in height. P. Webbiana is a fine species; but it is liable to be injured by spring frosts. It is now laden with its beautiful purple cones. Picea religiosa is 50 feet in height, and is well furnished to the ground with branches. This is also laden with cones. P. Lowi, magnifica, Nordmanniana, grandis, amabilis, and many others of recent introduction, also grow well in this district. Abies Smithii is one of the most ornamental of Firs in spring; its pendent branches, of a pale green colour, differ from everything else, and form a pleasing contrast with such Pines as the dark green P. insignis. These have this season, for the first time, been laden with male catkins, and have also borne a few cones. Their height is about 32 feet, and they are perfectly furnished to the very base. Of Cupressus macrocarpa, some specimens are 50 feet in height, and the branches spread 20 feet in circumference. Palms and Cycads grow out of doors at Fota. Chamærops excelsa, which is 10 feet in height and has a stem 3 feet in circumference, has stood out unprotected for fifteen years. Of Cycas revoluta small plants have stood out three years without protection. Bays do well here, the common ones making beautiful hedges by keeping the base a little wide. The Willow-leaved variety forms a compact, neat bush, about 20 feet in height. This does not fruit so freely as the common kind. The old Bottle-brush tree (Métrosideros) is perfectly hardy, a plant of it at Fota being about 10 feet in height, and hundreds of other trees and shrubs of an interesting character might be enumerated; but enough has been said to furnish some idea of the mildness of the climate of this part of Ireland, and the kinds of vegetation which thrive in it. There are few gardens more instructive than these in illustrating the noble effects that may be realised by judicious planting of a variety of well chosen subjects. The effect in various parts of the garden is "subtropical" in a far higher degree than in the gardens to which this term is usually applied. O.



VIEW NEAR THE BAMBOO ISLAND, IN MR. SMITH BARRY'S GARDEN, AT FOTA, QUEENSTOWN (Drawn by C. O. MURRAY).

THE PROPAGATOR.

CURIOSITIES OF GRAFTING.

At the last meeting of the Royal Horticultural Society, held on November 11th, it was stated that Mr. Maule, of Bristol, had succeeded in grafting Solanum nigrum and S. Dulcamara—common garden weeds, on to the stem of a Potato, his object being to infuse fresh vigour into the constitution of the variety of Potato acted upon, and so enable it to resist disease. We can scarcely hope for any practical and desirable result from such a union, as both the plants are poisonous species, yet the subject is of considerable interest, and it is one of those experiments which, without being of much practical value, still set one thinking, and are highly suggestive. In the "Gardeners' and Land Stewards Journal," 1847 (p. 85), is given a short account of an experiment in which a Tomato scion was grafted upon the stem of a Potato, and the scion developed its fruit and the stock formed tubers. We are not told precisely how the stock and scion behaved under the circumstances, but this experiment seems better worth repeating, since the results cannot but be highly interesting, from whatever point of view they are considered. Among all the authors who have written on grafting, from Parkinson downwards, I find none more explicit than R. A. Austen, who, in his "Treatise on Fruit Trees" (1755) p. 48, writes as follows:—"And in setting the grafts into the cleft, observe this for a most speciall rule, to joyne the inner side of the barke of the graft to the inner side of the barke of the stocke, that the sap may more easily come out of the stock into the graft to feed it, for the main current of the sap is betweene the bark and the wood. And regard not the custom of many grafters, in setting the outsides even and smooth, not considering the insides, their success is according to their skill for the most part. We know the bark of a big stock is much thicker than the bark of a slender graft, and if the outsides be smooth, and even the insides must needs be uneven." When and where did double grafting originate? I believe it was first secretly practised by the old German gardeners about three centuries ago. Parkinson (1625) recommends that the Red Roman Nectarine should be budded on an Apricot shoot that has previously been worked on a Plum stock, and Austen, in the above cited work (p. 57), says, "But I hold it best to inoculate the Red Roman Nectarine upon the branch of an Aprecock, which before hath been inoculated upon a good Plum stock, that it may give not only a larger but a finer nourishment than ordinary Plum stocks can doe." Even leaves may be grafted, and in the "Revue Horticole," 1866, a curious case is mentioned where MM. Thibaut and Keteleer succeeded in grafting an Orange leaf which had been taken off and struck as a cutting, the result being that the leaf and its petiole acquired a woody and persistent character. The leaves of Pachyphyllum bracteosum may also be made to serve as stocks for other Crassulaceous plants, and further experiments will, doubtless, greatly augment our knowledge of such cases. During the past year Mr. Smith, of Worcester, exhibited a fine golden-leaved Laburnum at South Kensington, and this, which had first been detected on a green-leaved Laburnum as a sport, had been multiplied by budding on green-leaved seedling stocks. Some time after they had been budded golden-variegated branches were produced on the stock below the point of union, and even suckers from the root so variegated were produced. Similar instances have been often observed from the year 1771, downwards, in the case of variegated Jasmine, Abutilon, and Passion-flowers, when budded, and are highly interesting to students of vegetable life. About 1873, M. Zenona Zen sent a paper to the Royal Institution at Venice, in which he stated that, after much study and many experiments, he had discovered a secret by which different varieties of Roses might be produced by a peculiar system of budding, and in order to test his assertions, two well known Italian botanists were appointed by the Institute to report on M. Zen's method, and in their presence, as we understand, buds were taken from known varieties and inserted in stocks by M. Zen, but nothing particularly different was observed in the mode of budding; nevertheless, when the plants bloomed, the flowers were found to vary from the kinds budded in a most extraordinary manner. Here the case rests, and before we condemn M. Zen's assertions we must remember the curious sportive character of cultivated Roses, nearly, if not all, our Moss Roses, both red and white, having originated as sports from the Cabbage or Provence Rose, and have been since perpetuated by grafting. Grafting often proves a great disturbing cause in vegetable life, and increases the sportive tendency of many of our popular ornamental shrubs and trees to an almost surprising extent. Of late years many experiments have been made in grafting the Grape Vine, and some useful knowledge as to the influence of stock on scion and scion on stock has thus been gained. There is one thing, however, which is apt to be forgotten in records of grafting, but which I am fully convinced affects the results obtained much more than is generally supposed. For example, a stock which is allowed to bear foliage and fruit of its own, and the same stock headed off and only allowed to bear the leaves and fruit of the scion, give very different results, as the stock which is allowed to retain its own leaves naturally retains more of its own constituent juices and constitutional characteristics than in the other case. It appears to me that the whole question of the reciprocal influence of scion and stock hangs on constitutional vigour, that is to say, a strong-growing scion will overrule and add vigour to a feeble stock; while, on the other hand, it is well known that a moderately vigorous stock strengthens and invigorates a feeble scion. The effects of constitutional vigour, to whatever cause it may be due, is seen when three or four varieties—Plums, Roses, Apples, or Pears—are worked on the same stock. Instances are on record where stocks influence the habit of the same plant in a most remarkable manner. Thus, in the "Revue Horticole" for 1867, M. Briot states that Libocedrus tetragona succeeds as a scion on Saxegothæa, and its habit, in consequence, becomes changed into a wide-spreading head instead of forming a narrow cylindrical column; while, on the other hand, Chamæcyparis obtusa pygmæa grafted on Biota or Thuja, or if propagated from cuttings, the plants spread horizontally along the ground. A most complicated and instructive experiment in grafting is recorded in the "Revue Horticole" (1867), from which it appears that M. Carillet, of Vincennes, took two young Pear trees, each of which was worked on the Quince stock, and one of these (Beurré d'Aremberg) was made to serve as the stock, while the other (Beurré de Charneu) was grafted upon it in an inverted position, having its roots fully exposed to the air. The operation was performed in April, 1866, and, during the summer, the stock grew vigorously, flowered, and bore two fruits, while the scion tree threw out buds and shoots from the Quince stock. We are not told whether the scion tree was headed back after the union was effected, but doubtless such was the case. To add to the complexity of this experiment, M. Carillet grafted four Pear scions on the principal roots of the Quince; and two of these succeeded. No intermixture of individual characteristics took place here, although the sap passed from Quince roots through Beurré d'Aremberg, thirdly through the inverted Beurré de Charneu, then through the Quince again, and finally into the two varieties of Pears. We cannot have too many records of experiments in grafting or budding, and their attendant results, provided that they are recorded fully and intelligently; and, without this, they are valueless for all practical purposes. In several cases, it has been proved that annual plants may be rendered perennial by using them as stocks for perennial species; but this is scarcely to be attributed to the influence of the perennial scion, but is rather owing to the annual having been prevented from flowering and perfecting its seed. Annuals soon commence to die off after their seeds ripen, just as the petals of flowers fade after the ovules are fertilised. It is a little singular to note that instances of endogynous grafting are almost unknown, and deciduous scions on an evergreen stock are rarely successful. The above are only a few of the numerous instances of grafting, which are both curious and interesting, and, at the same time, links in a chain of evidence most important to cultivators. Those who wish to pursue this subject still further, should read a valuable paper on it in the "Popular Science Review," 1871. F. W. B.

Mole Crickets.—M. Boutard Ruel, of Mer, destroys these by means of soapy water poured into their holes. To prepare the solution, boil, during a quarter of an hour, 18 ozs. of common soap in 30 quarts of water.

THE FRUIT GARDEN.

STRIPPING OLD BARK FROM GRAPE VINES.

Many consider this not only unnecessary but detrimental, and no doubt it would be so provided Vines were growing under natural conditions, *i.e.*, in the open air, where a warm coating of old bark would, doubtless, be most acceptable, but even in a wild state Vines divest themselves of their old bark, and the young bark, though exposed to all weathers, receives no injury. In fact, the shedding of bark is as natural as the shedding of foliage. Under glass Vines are not exposed to alternations of wet and frost, two of the most potent agents for loosening hard-bound bark, which, when effected, must certainly greatly assist the expansion of the inner bark. Everybody knows that running a knife down the stem of a bark-bound tree has been found to start it into vigorous growth; dead bark can only serve one purpose, viz., that of protection. Now, in the case of Vines under glass, they are seldom subjected to an atmosphere below the freezing point, when such natural protection is not required, therefore since it cannot benefit the Vine, I can see no reason why we should not remove it, should it be advantageous to do so, and it is, for, apart from its bad appearance, it affords a harbour for mealy bug, red spider, and other insects. It may be said—Why have insects in a Vinery? but those who have to grow a collection of plants in their Vineries, well understand, to their cost, that it is almost impossible to keep long free from them, and when once mealy bug, among others, gets established, it is not speedily eradicated. It will thus be apparent that smooth Vine rods afford great advantages in the way of cleanliness. As well might we have tree stems loaded with Moss and Lichen, as have Vines encumbered with a shaggy coat of dead insect-harbouring bark, closing up the breathing pores of the branches. I have often remarked great differences between the bark of Vines growing under glass, and that of those—alas! how few now—growing on the walls of cottages, or, in other words, out of doors. The one has loose flag-like bark, which hangs about and falls off with ease; the other has a hard coat, impenetrable to all that is beneficial to what is stored up within. John Taylor.

Hardwicke Grange, Shrewsbury.

A SUCCESSFUL PEAR ORCHARD.

We copy from the "Rochester Rural Home" the following account of the dwarf Pear orchard of Mr. Taylor, of Elba, Genesee county, New York. The great success of the owner has doubtless been owing to the constant culture and judicious pruning given to the trees, but, as many orchards, even under the very best treatment, do not come up to this in profit, a large share of the success is undoubtedly the result of an excellent natural locality as regards soil:—"Mr. Taylor bought 1,200 trees of the Duchesse, just ten years ago this autumn, and as he planted them 10 by 10 feet apart, they covered about 2¾ acres. A few, perhaps fifty, have perished from blight and other causes. Few or none died from the effects of transplanting. For ten years they have received no manure, but a crop of Potatoes has been taken off every year. The branches have been kept shortened in, so that trunk and branches are strong and stocky, and do not bend much under their heavy burden of fruit. The heads are oval in form, the leaves and bark are of a bright and healthy colour, and all things indicate that the trees are luxuriating in their proper soil, and receiving the right kind of treatment. In 1870, when they had been planted five years, they bore twenty-one barrels, which sold for £40 14s. 6d. The next year they yielded 180 barrels; third year, 220 barrels; the fourth, 280 barrels; and the indications are they will yield, this year, over 300 barrels. He has sold the present crop to Mr Walker, of Le Roy, who sends men to pack them in half barrels, making two classes, one of the larger and the other of the smaller sizes, and stores them in his fruit-house, kept at a low temperature by means of ice, where he keeps them till they will command the highest price, when he sells them at a good profit. He pays Mr. Taylor £1 2s. a barrel for the fruit. Let us resort to figures and see how dwarf Pears are paying Mr. Taylor this year—300 barrels, at £1 2s. a barrel, amounts to the sum of £330, which, if divided among 2¾ acres, gives £120 as the gross receipts from an acre. The four crops harvested before this year, brought him in all, £702 8s. and adding the value of this year's crop, we have the sum of £1,032 8s. as the gross income of this orchard of 2¾ acres of Pears, the first ten years after planting. The original cost of the trees and of planting was £140, which put to interest, would have amounted to £238 to date, against £1,032 8s. the income from Pears. We make no count of culture and rent of land, because the Potatoes paid that, and so we have £794 2s. to pay for pruning trees, gathering fruit, &c. This does not look as if we have any reason to be discouraged with dwarf Pear culture."

ARE OLD FRUIT TREES WORTH SAVING?

The question, "Shall we renovate our old orchards or plant new ones?" is in the minds of many, and is decided, I believe, mainly in favour of the young orchard; yet in a large number of cases no action at all is taken, so the old trees remain, and a sorry sight they are—cumberers of the ground, yielding little fruit, and that of an inferior quality. Nevertheless these trees can be made to give excellent returns. I (correspondent "New York Tribune") speak from experience—and that the most gratifying—when I say that an old orchard can be made to do the service of a new; more, it can be made to surpass it in a few years, and after that largely, till the new orchard has reached its maximum capacity. Whatever else it may be, it is not age alone that causes the decay of Apple orchards. This is clear from the fact that they may be rejuvenated—made to bear well and grow thriftily, and surpass whatever success they may have attained before. I have renewed old orchards of forty to fifty years standing, and some single trees considerably older, and have never known a tree fail to respond, and that promptly, and continue its growth if attended to. This last—continued attention—is of importance. If not given, an old tree rejuvenated will gradually go back till it reaches again the old point of decay. This is an element in which it differs from a young tree. It needs attention, as all trees do, but also more particular care taken; this care consists principally in keeping the wood renewed, and in a healthy condition. It is the change of wood—its renewal—that is the point with an old tree. Grow it thriftily on dry good soil, after the new growth is started, and it will have the smooth limbs and bright large leaves of a young tree, the fruit to correspond. The thing is to keep up an active growth, which can readily be done, till the tree reaches its full dimensions. This is the "resting" point. After this, each year remove some of the wood, not necessarily large limbs, unless crowded; keep thinning out, where dense, small limbs, and sometimes larger ones, as the case may require, so that sun and air have full chance for entrance; keep the upper part particularly open, so that no moist air is retained and light may get down into the tree. Keep all supernumerary shoots removed. In this way the roots will get the advantage. I have thus kept from twelve to fifteen years renewed tops in the finest and most thrifty condition, bearing the finest of fruit, and still bearing. Some that have been neglected for a few years past are deteriorating—not much, however. Keep the top slightly reduced from its standard dimensions, so as to get an increased pressure of the sap.

To begin the work of renewing an old orchard, care must be taken at first. Remove, of course, all dead limbs. Follow with a few of those that are in decay, and encourage shoots in their stead. If the limbs are close together, a less number of shoots than removed limbs should be encouraged, and an outward or spreading direction given. The sap, which was lost on the old ailing limbs, will now be diverted to the new, and infuse new life into that part of the tree, benefiting also the whole tree to some extent. The next year more limbs may be removed, and so on till the whole tree is renewed. This takes but a few years, and by that time the new growth will have considerably advanced. An equal distribution of the new wood and removal of the old throughout the tree should be kept in view, and not one side receive most attention. When the period has arrived—which it may in from three to five years, that the old wood is all removed, there will be a rapid, vigorous growth of the young wood that will surprise and delight. Keep this growth in hand, trimming and directing as required, and in no case permit a crowd of limbs. Let there be a free circulation of air, each limb independent, as if a tree by itself or so many trees on the old stock. In a few years there will be an ample top. Fruit may be grown during all this time from the beginning; this in the few sound limbs, if any; these to be pruned and opened to sun and wind. By the time the last old branch is gone the first new shoots will be in bearing. These may be grafted if desired. Do not be discouraged about the bad appearance of the orchard, thinking it too far gone to be saved. With but a few sprigs of green, the rest all dead, a tree may be brought into life, its former vigour reached and, in general, surpassed. It may invariably be surpassed if the tree has never been well attended to. Even if the bole is in a partially decayed condition, the tree should not at once be discarded. The new wood formed will stiffen it, and, with the aid of supports, continue it for many years. A favourite tree may thus be treated. Otherwise it would be preferable to substitute a new one. To plant a new orchard requires care and labour, with some risk and too much time before much fruit can be realised. The old orchard has its fruit continued to a considerable extent while the act of renewing is going on. There is much greater root power in the old tree, and the top will much sooner reach its full dimensions. You have a better chance to spread and open the top to the influences of sun and air, and you can give it all the grace and proportion you wish much sooner and more conspicuously than with a young tree. Compare the two orchards, side by side, as the writer has them under his eye and care, and you will admire—as who will not?—the young thrifty trees vying with each other. There is a pleasure always in contemplating a young orchard in its growth of limb and leaf; there is little fruit to be seen. Immediately by its side the old trees rejuvenated, rise up, throwing out their branches, each of which is a rival in size to the young tree, with equally large leaves and smooth limbs. There is a grandeur here that dwarfs the saplings, and makes them seem infants compared with the old, renovated veterans, yet as young in most respects as the juveniles at their side. There is no finer sight than these old trees thus renewed, their limbs loaded with large fruit, highly coloured, each fruit distinct and clean, as if it alone had received attention. Save the old trees; they are worthy of it, and they will well repay you. The best time for removing the large limbs is early in the spring, before the leaves push, salving or painting the wound over. The waste shoots that push forth may be rubbed off as they appear, being tender then, or removed at any time—it is best, however, to keep the trees clean during the season.

The Best Late Peach.—Mr. John Taylor (see p. 418) recommends me to try Lord Palmerston as the best late Peach. I quite agree with him as to the many good qualities of the plant, its handsome growth, and the size of its fruit, but I regret to say that, with me, it has not succeeded so well as Princess of Wales. In Mr. Rivers's large cool orchard-house I thought it an excellent fruit, but here it is leathery, and quite unfit to eat; it refuses, in fact, to ripen. I am always open and pleased to receive the kind suggestions of horticultural friends, and shall give his lordship another fair trial, when, if he does not mend his ways, I must finally discard him. So much for different localities.—W. R., *Morningside, Kidderminster.*

Utilising Wild Fruits.—The greatest difficulty which "W. H. J." (p. 426) would have to contend with, viz., in converting "Hips" into "jam" would be getting rid of the bristly hairs, which quite line the interior of the fruit, and which, if taken into the mouth, produce much irritation. Allow me therefore to furnish him with the following Parisian method of dealing with Hips. Slice them longitudinally, carefully remove the seeds and hairs, and expose the pulp to a gentle heat in a water bath, or leave it till it begins to grow soft, and then pass it through a hair-sieve. Pulp thus prepared can be easily made into jam, but considering the medicinal properties of the Wild Rose Hip, I certainly cannot imagine that the preserve would be found desirable for general use. A confection consisting of 1 lb. of the pulp, and 20 ozs. of refined sugar finely powdered and thoroughly mixed together, is often taken in febrile disorders. Many prefer the delicate scent of the water distilled from the petals of the wild dog Rose, to the richer fragrance of cultivated varieties.—E. W.

Spread of Fruit Culture in Switzerland.—It is stated that fruit may be bought in many parts of Switzerland at one halfpenny per pound. How is it, it may be asked, that we do not attempt fruit culture on the same scale? So long, says a correspondent of the "Journal of Horticulture," as tenants are not reimbursed for the improvements carried out on their farms, so long will fruit cultivation on an extensive scale remain in its infancy. In the country referred to, the land is divided into small holdings, each occupier being the owner; consequently, he is constantly endeavouring to make the most of his plot. All his land, whether pasture or under tillage, is planted with fruit trees, tall standards, so as to admit the oxen with the plough to pass beneath them. You may see the peasant trudging home with, perhaps, a dozen of young trees on his back to fill up any vacancies, or to stock a fresh piece of land he has acquired. Lanes and highways in this country, dotted here and there with crooked Elms, are there advantageously lined with Walnuts, Apples, Cherries, &c. The peasants acquire the love for arboriculture while yet at school. A plot of ground, planted with an assortment of fruit trees, being generally at the disposal of the schoolmaster and his pupils, he will give them lessons on grafting and budding; explain to them the relative merits of the different varieties, and thus implant knowledge into their young minds which generally bear fruit in after-life. On one occasion, I saw half-a-dozen youngsters clambering up a wild Cherry tree which had previously been looped, and under the direction of the long-coated, spectacled, wielder of the rod, they commenced grafting the tree with some new varieties that had been received. If some such system were adopted in the schools of our agricultural districts, it would diffuse practical knowledge among our rising generation, the importance and the results of which could with difficulty be estimated.

Pruning Orchard Trees.—After the fall of the leaf is a good time to notice any irregularity of growth in orchard trees, and this may then be rectified in a short time, always bearing in mind that, in the case of large limbs being removed, the wound should be covered with some preparation to shelter it from the weather. Gum-shellac dissolved in alcohol or even cow manure bound on the parts exposed, answers the purpose. A handsomely formed tree is not alone valued for its appearance to the eye; it is in reality more useful, as the crop of fruit is then usually more evenly distributed over the branches.—A. N.

Large Pears in South Wales.—Evidence of the favourable nature of the climate of South Wales, for Pear culture, occurs in a recent note from a correspondent of the "Journal of Horticulture," who says:—A few days ago I received from Carmarthenshire a box of specimen Pears of such unusual size and beauty, that I think they are worthy of being noticed in the pages of our journal. Easter Beurré, 1 lb. 1 oz.; Beurré Superfin, 1 lb. ½ oz.; Durandeau, 14½ ozs.; Beurré d'Anjou, 12 ozs.; Marie Louise, 12¼ ozs.; Winter Nelis, 10½ ozs.; Gansel's Seckle, 8 ozs.; Zéphirin Grégoire, 6¾ ozs.; Doyenné du Comice, 1 lb. 6¼ ozs. This last magnificent specimen measured 13½ inches every way. These Pear trees were not delicately nurtured under glass in an orchard-house and fed with stimulants, but they grew in the open air, and carried full crops of fruit. The Marie Louise last year produced upwards of 640 fruit, and has yielded another very large crop this year.

Choice Pears in Scotland.—Mr. Henry Knight, of Floors, writing in the "Florist," says, I was not aware till this year that Chaumontel Pears would grow so large as they do, so far north as this. We have several fruits that will weigh more than a pound each. I got a box of fifty sent be last year from Jersey, and none of them were heavier than those I have just gathered from a west wall. Gansel's Bergamot and Knight's Monarch are also unusually large, and so is Beurré Rance, all excellent winter Pears—for although the Bergamot can scarcely be called a winter Pear, yet we have it keeping to the new year. I never saw a better sample of Marie Louise—large and beautifully coloured. A heavy watering with liquid manure in June no doubt tended to increase the size greatly. Easter Beurré does well on the same site, but it has been cropped rather heavily, and they are not so large as they would have been. This, the finest of all winter Pears, is very valuable in the months of March and April. Where trees are, and these sorts are not, I would advise fruit-budding them in quantity on bare portions of the stem; it is not too late to do this, if the weather keeps open. All those kinds I have mentioned here, and many more, are on the Pear stock, and are large trees, but have still room for extension, which I consider the life of a fruitful tree, having taken out rider-trees a year or two ago from between them. I think a south or west Pear-wall planted with those first-class winter Pears, is a valuable acquisition in a garden, and in my estimation ranks next to a house of Lady Downe's Grapes, when one is expected to present an eatable desert from the new year and onwards.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Flemish Beauty Pear.—At the great Pomological Meeting at Chicago, the Pear that was found in the largest number of collections, and that was most frequently marked for special praise by the committee, was the Flemish Beauty. This indicates a very wide area for the cultivation of that favourite kind. While it has faults in many districts, yet its hardiness, and its prolific and early bearing qualities are so well proved, that it finds great favour everywhere.

Twelve Pears on the Quince.—The "Moniteur Horticole" recommends the following twelve Pears as pyramids on the Quince, on the ground of hardness of bloom, vigorous constitution, and their hardy character:—Ananas de Courtrai, Beurré Dumont, Louise Bonne d'Avranches, Conseiller de la Cour, Duchesse d'Angoulême, Beurré Durandeau, Soldat Laboureur, Doyenné du Comice, Thompson's, Sœur Grégoire, Passe Crassane, and Bergamotte Esperen. The habit of these grafted on the Quince is erect-growing and pyramidal.

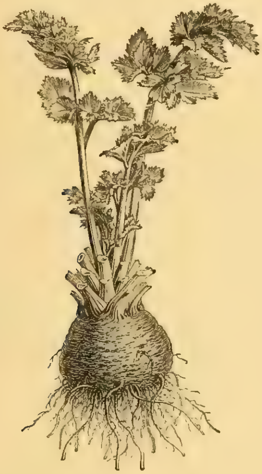
Starlings Eating Apples.—Is this a common occurrence? With me they began to eat them early in October, confining their depredations to the Winter Pearmain. The crop, with the exception of a few Apples on the topmost branches, was gathered late in October, and, upon those left, the starlings have continued to feed, and have been regularly joined in their repast during the second and third weeks of November by chaffinches, and occasionally by sparrows and blackbirds.—W. T. T.

Pear Docteur Jules Guyot.—MM. Baltet, of Troyes, have sent out this new Pear, which, according to M. Gilbert, of Antwerp, and M. Galopin, of Liège, ripens in the middle of August, and surpasses Williams's Bon Chrétien (Bartlett) in vigour, size of the fruit, and quality of flesh.

THE KITCHEN GARDEN.

TURNIP-ROOTED CELERY.

The root, which is the only valuable portion of this Celery is a short tuber or bulb, irregularly rounded, the size of which frequently exceeds that of one's fist. This Celery is sown in the neighbourhood of Paris (where it is more used than with us), in February, on a hotbed; but, in the open air, during the second fortnight in April, or even later. The plants are pricked out in nursery rows, and are transferred to their permanent quarters during the second fortnight in June. The roots are fit for use in September, October, and November, according to the progress they have made. We may observe that Celery, whatever may be the variety, requires a deep, cool, well-manured soil, and abundant waterings, even during moist summers. Cultivators are in the habit of cutting off several of the large leaves of the plant, besides offshoots, and then of earthing the plant up, a practice which tends to increase the size of the tuber. The latter, though generally eaten cooked, is sometimes used, cut in slices, in a raw state in salads. There are two or three varieties of this Celery, amongst which may be mentioned the common Parisian variety, which is the largest, and the Erfurt, the root of which is smaller, but at the same time earlier and more delicate. J. F.



Turnip-rooted Celery.

LEAF MOULD.

No article of a fertilising description enters so largely into garden composts as leaf mould in some form or other, perhaps as much because it is almost always procurable as that it is so useful for many purposes. Mould from tree leaves, or from a compound of leaves and litter, is of course referred to here, and not vegetable mould of any description, such as the decomposed refuse of garden crops, &c., which is a very different material, and, though a good manure for some purposes, is not a substitute for leaf mould proper. With the assistance of leaf mould and a little sand the gardener may reduce the heaviest and most uncompromising soil to a condition fit for any purpose. But he may also overdose his composts with it. It is quite certain that leaf mould is often used to excess, and with no good results. It is one of the best root-producers than can be employed, and is chiefly useful on this account; but it is not a sustaining manure, and is only serviceable when mixed with soils of a substantial description. Hence it is generally used for mixing with maiden loam, whether turfy or otherwise; but for kitchen gardens or flower beds to which organic manures have been added for years it is of little value. In fact, there are many things, such as Lobelias, Geraniums, and other bedding plants, and vegetables, such as Turnips, Carrots, and Beet, &c., that never thrive successfully in a soil overladen with humus. It suits Potatoes and Peas, particularly if lime is given with it. Lettuce, Parsley, and Spinach, that grow quickly, delight in it, but it is not of great value to the Brassica tribe, unless in heavy soils. It is on the potting bench that leaf mould is most constantly in request, being required for the majority of pot-plants, and, in the absence of peat, indispensable for seed sowing. It is not advisable, however, to use it where bottom-heat is employed, unless it is thorougly decayed, and free from pieces of sticks or tree seeds, such as Oak or Beech mast. Wherever the latter is buried in heated beds or borders it generates Fungi to an alarming extent. More than once we have seen heated Vine borders so completely overrun with mycelium, from this cause, that they had to be renewed throughout; the soil positively stunk with the smell of Fungi, and no healthy root action took place. Beech leaves may be used for hotbeds, but they make the worst leaf mould. Oak leaves are the best of all for every purpose, and next to them a general mixture is best, always keeping out Beech if practicable. Spent hotbeds generally supply the stock of leaf mould; but one year's fermentation does not fit it for cultural purpose. It should be laid up in a heap, and left till it is reduced to a fine black mould. The proportion of leaf mould that should be employed for pot plants or beds depends upon the texture of the loam used. To our good but heavy loam here we add bulk for bulk for general purposes (not weight for weight), besides sand; this is not too much for the compost at the end of a year, by which time the mould has decayed considerably, but has the appearance still of a strong loam. Such plants as Cinerarias, Calceolarias, Pelargoniums, and Balsams thrive well in it; but with a less proportion of mould they root but slowly, and do not thrive. Light, sandy, or brown loams seldom require leaf mould; but well-rotted cow manure may be given with advantage. J. S.

THE TOMATO.

The demand for good Tomatoes only dates from yesterday, and yet it promises soon to come from every house and home in the kingdom. The taste for Tomatoes is an acquired one. The sauce has long been popular and well known to epicures. Mutton chops with Tomato sauce are, without doubt, very palateable; but as to eating them raw or just as they grow, or with a little pepper and salt, or shredding them up in the salad bowl, or having them served whole at table with fish or meat, as one might a cooked Potato or boiled Cauliflower, or even of having a dish of roasted Tomatoes as a luxury our fathers and mothers would never have believed the thing possible. And yet it is a fact that Englishmen are fast learning to eat Tomatoes, and that our American cousins eat them greedily raw, as hungry boys might Pears or Apples off a street-stall. They are pronounced to be wholesome, and the high and beautiful colour has also a good deal to do with their popularity. This has been strikingly proved during the present season. There can be no question that the Greengage Tomato of the Messrs. Carter is one of the best and most delicately-flavoured of any variety in cultivation. This has been proved again and again. And yet because it is golden and not red it will not sell in Covent Garden nor other markets, and is likely, commercially, to prove a failure in consequence. Doubtless, however, it will be grown in private gardens, as I find that it is preferred by good judges and French cooks in private families to either the common red, the Trophy, Sims' Mammoth Excelsior, or large red, and these are some of the finest and highest coloured Tomatoes in cultivation. This merely shows upon what small pivots public taste turns in matters of eating. We have but to enter commercial or private gardens to see how strongly the current has set in towards Tomatoes or Love Apples. Go where one will, Tomatoes by the hundred meet the eye. In preparing for the winter supply, a place for Tomatoes is as carefully prepared as for winter Cucumbers. Some market gardeners hold them to be even a more profitable crop. There is never any difficulty in selling any quantity, as Tomatoes are now in demand all the year round. The fresh fruits are considered far superior to sauce, and are used for salad and eaten whole as a dish of vegetables at table, either cooked or raw, and for every other purpose for which Tomato sauce is quite unsuitable. Tomatoes are highly ornamental when in fruit, which is almost worth growing for its beauty. Not only are all the common forms beautiful to look upon when in fruit, but any of the fancy varieties, such as the new Scarlet Pear-shaped, new Red Currant, and the Red and Yellow Cherry Tomatoes, all of which have similar qualities to the larger varieties, are quite equal in decorative merit to the berried Solanum Capsicastrum and its varieties so generally grown for ornament alone. The plant comes in most useful for the clothing of vacant spaces on southern and western walls, and can also be grown very successfully on raised banks of earth laid on the ground against hoardings or other fences, and in the warmer counties of England in open gardens, planted out in rows. It does also remarkably well in pots, so that those who have no ground but only a paved yard a few feet square, in a warm sunny position, might nevertheless grow their own Tomatoes, and thus enjoy one of the most wholesome and useful vegetables of the garden. The seeds should be sown in heat—a Cucumber bed or frame, or in a milder hot-bed, such as is used for the raising of annual or other flower seeds. They vegetate rapidly, and run up fast in a temperature of 60° or so. The seed is generally good, that is, almost every seed will grow, and, therefore, should be sown thinly in any light soil and lightly covered with a quarter of an inch of mould. As soon as the first leaves are fairly formed, pot off the plants singly, or, at the most, two in a small 60-sized pot, and, in the latter case, let the plants occupy the opposite sides of the pots. In potting, sink the Tomato stem up to the first pair of leaves and the plants root readily up the stem, and this keeps them more dwarf. Shift on into larger pots as the plants grow, until the single or double plants reach a 6-inch pot, which should not be exceeded, with plants intended for the open air. A soil suitable for the early growth of Tomatoes is two parts loam and one of rotten dung. The first of June is time enough to place the plants into their fruiting quarters out of doors. These quarters must neither be cold, deep, nor wet, if a maximum weight of fruit is to be gathered. A dry, rather poor soil is best for Tomatoes in the open air. This will check luxuriance and throw them into fruitfulness, and as soon as the plants are heavily laden with fruit they can be helped to form it of good size and rich colour by the use of manure-water or dressings of solid dung, as mulchings. Neither must the plants be allowed to flag for want of water nor suffer for lack of food. A heavy crop of fruit in different stages of growth proves a great strain on their strength and resources, and they must be supplied with abundance of food and water. Attention must also be directed to the stopping of the growing shoots, the prevention of overcrowding and the removal of any excess of leaves that overshadow the fruit. Also cut the fruit as it ripens, and if not all wanted when gathered it will keep for weeks laid or hung up in a dry room. By gathering the fruit almost before it is ripe, the strength of the plants flows into the successional clusters, which swell and ripen all the faster in consequence of the removal of the nearly ripe fruits, which being nearer to the roots appear to have the first claims on the sap on its way upwards to the fruit. Tomatoes in pots want exactly the same treatment, only they will require a stake to support them unless they can be placed against a wall or some other support, or are permitted to lie on the soil, stones, or gravel, on which they stand. The portability of the plants in pots is also a great advantage in the autumn. In cold summers it is no uncommon thing to see Tomatoes planted out against walls, or on sloping banks, or in rows in the garden, laden with the best fruits in October. Fortunately a good deal can be done in the ripening of Tomatoes after they are removed from the plants by hanging them up in warm kitchens, &c., and green Tomatoes are useful for pickling. Still a great many fruits are often wasted by being so late, and the first early frosts blacken and ruin the fruit, which is most sensitive to its effects. Under such circumstances those in pots are immediately removed under the shelter of glass or wood, and Tomatoes in pots may thus be preserved and gradually ripened with little or no heat, or in a kitchen or sitting-room window, and yield good gatherings up to Christmas; while, of course, those who have more heat at command can carry them on and take the plants right through the winter and spring, and making the Tomato season continuous..—"Villa Gardener." [One point is important in the open air culture of the Tomato, viz., pinching off, when very young, the numerous late bunches which have no chance of ripening in our climate; they merely weaken the early clusters. Once a good crop, that will ripen or nearly ripen, is set, it is good practice to remove all the subsequently-formed small fruit and flowers.]

TOMATO LEAVES *v.* APHIDES.

M. SIROT, writing in the "Journal of the Central Horticultural Society of France," says:—"Last winter a Peach tree of mine, which had made vigorous growth, fell off, and a couple of months ago was overrun by aphides or plant lice, and the ants which always follow in their train. Having one day pruned some Tomatoes I placed the cut portions upon the Peach tree to protect it from the heat of the sun. The following day both lice and ants vanished, except upon the rolled-up leaves where the Tomatoes could not penetrate. I unrolled these as far as possible and placed fresh Tomato leaves upon them, and from that moment the Peach tree has been perfectly free from insects and grows admirably. I followed up my experience by macerating Tomato leaves in water, with which I sprinkled my climbing Nasturtiums, Orange, and Rose trees. All these plants, which were infested with insects, were freed from them in two days. I almost regretted that the clean state of my Melons did not give me an opportunity of trying a similar experiment upon them. Here, then, is a valuable property of the Tomato discovered by the merest accident, for I have never read or heard of it before. Petunia leaves are said to have a similar effect; but, in the trials I have made, I only achieved partial success, and up to the present time tobacco has been the only specific remedy. Tomato leaves are much more easily procured than the latter; they are always at hand, and many are wasted in all gardens which can thus be utilised."

Potatoes in January.—Last January, Mr. Batters, Chilworth Manor, Romsey, exhibited at South Kensington a very fine sample of new Potatoes, which were produced as follows:—The variety Rivers's Royal Ashleaf was dug from open ground in June, 1874. The tubers were then laid thinly in a spare upstairs room, and on October 2nd were potted in 32-sized pots, they were placed first on the back shelf of a Melon-house, and were afterwards removed to the back shelf of a cold house on October 20th, being then from 9 inches to a foot in height. They remained in the cold house until November 24th, having plenty of air during the day, and were then removed to a small Fig-house, through which a little piping runs on its way to early Vines. Thus treated, Potatoes of good size were fit for table on January 1st, 1875. Another lot was potted on January 23rd, and a few after that date.

Superphosphate for Asparagus.—Mr. Peter Henderson, writing to the "Country Gentleman," says he has found superphosphate of lime very useful as an application to Asparagus beds, at the rate of 500 lbs. per acre, sown on the beds and hoed in. When tried on alternate rows the crop was nearly double when cut the following spring. This experiment is easily performed by those who have superphosphate on hand, but the same degree of success is not to be expected on all soils. We have known other crops to be equally benefited by the application of this fertiliser in one place while the effect was imperceptible in another neighbourhood not six miles distant, with no visible difference in the character of the soil.

Asparagus Culture in Vineyards.—At Argenteuil, where Asparagus is so much, and so well, grown for the Paris market, it has long been a favourite practice to grow it among the Vines. About the year 1818, according to M. Dubost, one Lescot grew Asparagus along with the Vine, no doubt to fill up the vacant spaces left by the Vines, which died from age or accident. The results he obtained excited attention, and it was not long before it was recognised that if the Vine suffered from the proximity of the Asparagus, the latter gained much from its association with the Vine, and that ultimately it would be more profitable to associate the two than to grow them separately. No doubt also the very wide space thus secured to the Asparagus prevented the crowding and starving of the roots, which to this day is the rule in many gardens.

The Butman Squash.—For several years I have tried to find a good late Squash which would cook dry and mealy, like a well-ripened Potato. The Hubbard came nearest to the required standard, but if it failed to thoroughly ripen the flesh would be more or less watery, especially when boiled. This year, I tried the Butman, sent out last spring as a promising novelty among Squashes. To day I have tried it boiled and served up in the usual way, and I am inclined to put it at the head of the list as a late variety or Winter Squash. It certainly comes nearest to my idea of what a Squash should be for table use of anything of the kind I have seen for many years.—"Moore's Rural." [It would be well to introduce to our cottage and kitchen gardens the best Squash Gourds which keep so long, and form such useful vegetable food in winter.]

Compton's Surprise, the best Potato.—A. S. Fuller, a well-known and able horticulturist, who has within the past five years tried two hundred sorts of Potatoes, in speaking of the new American seedlings in "Moore's Rural," says, "For quality alone I vote, unhesitatingly, for Compton's Surprise. It is the whitest fleshed Potato that I have ever seen, and the flavour is unexceptionable. The growth, yield, and health of the plants are also all favourable, but the colour of the skin is decidedly objectionable, being a dark purple, almost black. For baking it answers very well, and if carefully peeled before boiling it will do; but if cooked whole, they are like a snowball in an ink-pot, and one trial would be enough. The colour of this variety is a barrier against its ever becoming a popular sort, either for market or home use, although it is the best Potato for quality alone that I have ever seen." Snowflake he places next to this in point of quality.

Seakale Beet.—How should I force and cook this Beet?—J. L., *Chelmsford.* [This Beet is grown like common Beet. The leaf-stalks are used as a vegetable, and are peeled and served up like Seakale or Asparagus. They are also used by cooks in various other ways in stews and the like.—I.]

Veitch's Autumn Cauliflower in Summer.—This, like Walcheren and others, can be grown in summer as well as in autumn. I have plants of it, sown in a cold frame about a month ago, which will come in between the first Cauliflowers in spring and the spring-sown ones. Cottagers in this neighbourhood grow this kind extensively, which is a pretty good proof of its usefulness. W. DIVERS, *Wierton, Maidstone.*

FRUIT CULTIVATION IN KENT.*

By G. WEBB.

It is hardly more than twenty years since railways first opened out our country; but, during that short period, the cultivation of fruit has received greatly increased attention, both at home and abroad. Where soil and climate are favourable, new fruit plantations may be seen springing up in all directions; fruit growing, indeed, begins to figure prominently among the industrial resources of the kingdom, and a great question must soon arise, whether the consumption of our increasing population will keep pace with the supply afforded from so enlarged an area of planted land. This year has probably been the best, for many years past, to test the question, for crops of all kinds of fruit, most especially of Cherries, have been enormous; but, I believe, that if the rainy season had not prevented the gathering, the greater part of these crops would have found a remunerative market in the manufacturing districts. From the returns of 1874, the fruit crop in England is stated as occupying, excluding gardens, 145,622 acres. The counties which contribute the largest acreage are—Devon, 24,312; Hereford, 21,534; Somerset, 19,857; Worcester, 13,390; Gloucester, 11,152; Kent, 11,186; Cornwall, 4,180. No other county has 4,000 acres. Before speaking of fruit plantations, I ought to say a few words as to the preparation required in making fresh ones; for everything depends on a good start. The first thing to be done is to select the ground. If it be possible to do so, avoid all low-lying lands or valleys—for valleys catch the frost most—and take the higher land, having a south-east, south, or south-west aspect. The more the trees are exposed to the east the better; for the morning sun, in such situations, comes out gradually on the bloom; whereas, if the sun (after having been up some time) falls suddenly on the trees in valleys, the bloom is certain to be cut off. We had a marked instance of this in the severe frost of May, 1871. One orchard lay in a valley with rising ground to the west, and the bloom was not only completely cut off, but the trees themselves were so injured that they took three years to recover; but where the land was only 12 feet higher, the frost took very much less effect. Shelter on the south-west is very desirable, either by means of a good, high Quick hedge, or a belt of Larch, as south-westerly gales do much injury to both fruit and trees. Before planting, the land should have a dressing of well-rotted compost. It should then be deeply ploughed and sub-soiled or dug, and trenching, although expensive, always pays. The field should then be properly squared and set out; the holes for standard trees well thrown out, not less than 3 feet over by 2 feet deep (for which we pay about 4s. per 100), and, if possible, every tree should be planted by the 10th of December, the depth best suited being, say 6 to 9 inches. Young trees should always be carefully watched during the next summer after planting. The moment their leaves droop the water-cart should be employed; or where this cannot be done easily, some rough farmyard manure should be put round the tree to keep in the moisture. In exposed situations, or where there is stock, the trees will require some support for protection. Five or six old dipped hop-poles or stakes, bound with a piece of iron hooping at the top, make a good guard; or against sheep or rabbits, tree guards cut from common wire netting answer well. After the tree is once started, the pruning-knife must be freely used for the first three or four years, to form a good head, and the shoots will require to be both shortened and thinned. It is better to clear the inside of a tree while young, than after it is old. Next comes the great question, what to plant! It is, of course, most important to select the sort of fruit and the kind of cultivation which specially suit each locality, for herein rests future success or disappointment. The questions of soil, climate, aspect, and the description of fruit best adapted to them, must be deeply weighed and considered; and, after all this is done, there still remains another difficult consideration—namely, Covent Garden Market. We must please our customers and must keep pace with the times, or all our care and skill in cultivating will go for nothing. The popular sort of to-day may, in three years' time, be entirely discarded and then will come all the mortification of having to re-plant or re-graft, and a great loss of both time and money. In showing the necessity of studying climate, I cannot give you a better illustration than the Chaumontel Pear. In Jersey these Pears grow on the bush, and are so fine that they frequently sell for 1s. each. In Kent, about 100 feet above the sea level, this sort bears well, and two years out of three is well-flavoured; but at an increased altitude of 300 feet the fruit is no better than a Turnip. Again, as to the study of the market. The sorts that often engage the attention of the grower are by the fruit salesman or costermonger the most neglected. The latter wants an Apple or Pear that will last beyond a day, and which will preserve its colour and quality. Pears such as the Williams, Beurré Bosc, and Capiaumont are the kinds which answer their purpose best; but fine, showy sorts, like the Beurré d'Amanlis, Colmar d'Eté, and Gratioli, they care little for. That useful and early Apple, the Keswick Codlin, formerly sold well, but now, from being so plentiful, hardly pays expenses of sale. I now proceed to treat of fruit plantations under three different classes:—1. Orchards planted entirely with standard trees, the bottom being Grass, fed off by sheep. 2. Fruit plantations containing standards or half-standards, with which is raised a plant of Gooseberries, Currants, Nuts, &c. 3. Fruit plantations which grow bush fruit, and of the berry tribe only. I may here state that by the term "berry" I mean to imply Gooseberries and Currants, black and red. While dealing with these classes, I propose to refer to the sorts of fruit most applicable to each kind of cultivation.

Cherries.

Orchards are, perhaps, the most desirable on the whole, for the reason that they require less labour and last longer; nor can anything exceed the beauty of an orchard when in full bloom; for the effect of the snow-like blossoms, aided by the greensward beneath is most charming. The plan now usually adopted is to set the permanent plants of Cherries, Pears, or Apples, 10 yards (or where the land is very strong, 12 yards) apart each way, with a Plum as an intermediate plant. The Plum is the plant generally selected, as the tree rarely lasts longer than the time required for the other sorts to get up. This gives eighty trees to the acre. As a native of East Kent, I may, perhaps, be excused for commencing with the Cherry, which, I believe, was first introduced into our county. But to proceed. Cherries like a dry sub-soil, and will not do in the clays; neither do they like cultivation for any length of time, and although the trees will attain a good size, and bear at times tolerably well, they do best on Grass, and when their roots are undisturbed. Plantations of Cherries are, however, frequently raised on cultivated land, with a crop of underfruit, and the trees will in this way make wood very fast. After eight or ten years, however, the land should be laid down to Grass. A good climate is indispensable for Cherries, especially such sorts as the Bigarreau and the Duke tribe. These sorts flourish best at an elevation of from 30 to 200 feet above the sea level; Black Heart Kentish, and Turkey Hearts, will do fairly up to 400 feet; but at any elevation beyond this the chance of a crop is very precarious, and the fruit indifferent. It is odd, that although our great propagators have added of late years so many excellent and useful varieties to the stock of Apples, Pears, and Plums, yet with Cherries we have had but few additions. The old recognised sorts continue to hold a prominent place in all fresh plantings. We much require a few good early sorts to compete with the foreigner; but what new sorts we have must be proved before we know their standard qualities. For all useful purposes I should recommend for orchards—Early Purple Gean, Adam's Crown, Frogmore Bigarreau, May Duke, Governor Wood, Cleveland Bigarreau, Elton Heart, Knight's Early Black, Old Black Heart, Waterloo, Bigarreau, Mammoth, Mary, Black Tartarian, Black Eagle, Flemish, Turkey Heart, Florence, Kentish, Cluster, and Morello. The above will ripen in the order in which they are placed. The Bigarreau and Cluster make the largest trees; indeed, the latter might be planted as an ornamental tree in any park. It is of no unfrequent occurrence to get from eighteen to twenty-five sieves of 48 lbs. each from a Cluster. Mr. Neame, of Selling Court, has sent to market forty and a half sieves from one tree (nearly a ton), but, what is quite as wonderful, I have known a tree, at Milton, which has grown twenty sieves of Adam's Crowns. Cherries, where they thrive, pay well as a rule. In letting an estate some fourteen years ago, where it was incumbent on us to make the most we could of the property, we decided to reserve the fruit and let the bottoms. There are about 90 acres of mixed fruit, principally Cherries. The fruit has been sold by auction when fit to gather. I give you the returns of these orchards, together with some others which come under our notice and management. The expenses of sale are not taken off, but may be taken at about two per cent. The bottoms are let at about £2 per acre, and an allowance is made to the tenant for a proportion of rates and tithes.

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* Read November 22, at an Ordinary General Meeting of the Institution of Surveyors.

NAME OF PARISH.	Number of consecutive years the fruit has been sold by Auction.	ACREAGE.	Annual average sale for the years stated in the column 2 of		Total average Sale of Cherries and hard fruit.	Average Returns per acre for years stated.	REMARKS.
			Cherries.	Hard Fruit.			
		A. R. P.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
Lynsted and Teynham	14	88 0 0	1,214 0 0	500 0 0	1,714 0 0	19 9 6	15 acres of these have not arrived at perfection.
Milton	13	29 0 0	350 0 0	250 0 0	600 0 0	20 14 0	Old plantations.
Tunstall and Halstow	13	32 2 0	423 10 0	148 10 0	572 0 0	17 12 0	The same.
Milton	13	10 0 0	69 0 0	68 0 0	137 0 0	13 14 0	This orchard lies low and flat.
Borden and Tunstall	13	2 3 20	88 6 0	6 4 0	94 10 0	34 7 0	An old plantation, lies well.
Sittingbourne	5	9 0 0	—	—	270 0 0	30 0 0	Sold privately together.
Rainham	4	7 2 0	—	—	202 0 0	27 0 0	The same.

The plan of selling by auction is an easy one for the grower, and on the whole we find that the trees are fairly taken care of. I find the cost of gathering and marketing Cherries to be about 3s. per sieve, which is an increase of about 1s., compared with twenty-five years ago. We calculate that we have made on the trees, for the last ten years, an average of 5s. 6d. per sieve.

Pears.

I next pass to Pears, which require a deep, rich soil, and, of the two, a better climate than Cherries; but they are not so much grown in Kent as the latter. The sorts principally grown for profit are:

	Time of Ripening.
Doyenné d'Eté	July
Chalk	July
Citron des Carmes	July
Lammas	August
Windsor	August
Caillot Rosat	August
Bellissime d'Automne	Aug. and Sept.
Colmar d'Eté	September
Bon Chrétien (Williams)	September
Yat	September
Beurré d'Amanlis	Sept. and Oct.
Bergamote	September
Hessle	September

	Time of Ripening.
Marie Louise	October
Suffolk Thorn	October
Eyewood	October
Catherine	October
Beurré Bosc	Oct. and Nov.
Calébasse	Oct. and Nov.
Aston Town	Oct. and Nov.
Beurré de Capiaumont	Nov. and Dec.
Duchesse d'Angoulême	Oct. and Nov.
Rondelet	November
Nutmeg	Dec. and Jan.
Moccas	December
Catillac	Dec. to April.

There are also many new sorts, but they require proving before we can know whether they will bear on standards. Many good Pears, it may be observed, do well as bushes, which will not do as standards. I will name a few of the best sorts for the bushes, and will also digress a little by recommending a few for a wall.

FOR BUSH OR PYRAMID.	Time of Ripening.
Doyenné d'Eté	July
Beurré Giffard	August
Beurré d'Assomption	August
Désiré Cornélis	Aug. and Sept.
Colmar d'Eté	September
Beurré Goubault	September
Souvenir du Congrès	September
Gratioli of Jersey	September
Louise Bonne of Jersey	September
Beurré Superfin	October
Beurré Hardy	October
Doyenné du Comice	Oct. and Nov.

FOR BUSH OR PYRAMID.	Time of Ripening.
Marie Louise d'Uccle	October
Belle Julie	October
Pitmaston Duchess	Oct. and Nov.
Maréchal de la Cour	November
Baronne de Mello	November
Beurré Duval	November
Durandeau	November
Thompson's	November
Zéphirin Grégoire	December
Beurré Stérkmans	Jan. and Feb.
Joséphine de Malines	Feb. and May

FOR A WALL.	Time of Ripening.
Citron des Carmes	July
Jargonelle	August
Fondante d'Automne	September
Marie Louise (on north aspect)	October
Gansel's Bergamot	Oct. and Nov.
Brown Beurré	November
Van Mons Léon Le Clerc	November
Glou Morgeau	November
Urbaniste	Oct. and Nov.
Huyshe's Prn. of Wales	November
Passe Colmar	Nov. and Dec.
Ne Plus Meuris	December

FOR A WALL.	Time of Ripening
Chaumontelle	December
Beurré Diel	December
Beurré d'Aremburg	Dec. and Jan.
Winter Nélis	Dec. and Feb.
Bergamotte d'Esperen	Feb. and April
Prince Albert	February
Easter Beurré	Feb. and April
Beurré Rance	March
Alexandre Bivort	February
Huyshe's Victoria	Jan. and Feb.
St. Germain's (very fine, but coarse)	April

Plums.

These are grown in our orchards merely to fill up intermediate spaces between other trees. They never make a very large head, and, consequently, are more suited for confined spaces. Neither do they last so long as Cherries, Pears, or Apples. The wind has great effect on them, and when they get to any age they lose large limbs. Their roots skim just under the surface, and they consequently soon derive benefit from any dressing of manure. Not long since I measured the distance which some Plum roots had travelled from the main stem, and found it to be 46 feet. There are some orchards in Kent planted entirely with Plums, generally 6 by 7 yards apart, and they are very productive, notably one of Greengages at Gillingham. A few years ago this piece was a perfect model of a fruit plantation. The trees were large for Gages, and bore abundantly in one year, making, I believe, more than £100 per acre. The trees are going off now, but there is an intermediate plant of other kinds coming up. The owner was offered £50 an acre for the fruit on the whole 28 acres, half of which was not nearly so valuable as the Greengage part. The Plum is so useful a fruit for domestic purposes, that it will be a long time before we get too many of them. The best sorts for bearing, and the kind possessing the most useful qualities are—Early Rivers, Early Orleans, Dauphine, Victoria, Belgian Purple, Stone Wood, Orleans, Gisborne's, Goliath, Belle de Louvain, Pond's Seedling, Prince of Wales, Sandalls, Prince Engelbert, Washington, Mitchelson's, Autumn Beauty, Diamond, Greengage, Oulin's Golden Gage, Jefferson, White Magnum Bonum, Cluster Damson, and Prune Damson.

Apples.

Lastly, I come to the Apple, the most useful of all fruits both to the rich and to the poor. For eleven months in the year this excellent fruit supplies our tables; but, although cultivated largely in certain parts of Kent, we find, as a rule, that Cherries pay better where the soil is suitable. Apples will grow on almost any soil, even on stiff clays, if drained, but they are not so suitable for orchards, as the Grass grows more rankly and the sheep, as a consequence, do not feed so closely. Where the soil suits the Apple makes a large head, and requires as much room as any tree. I have heard of 500 bushels being grown on one acre. As for sorts, their name is legion, but some of the best are:

DESSERT.	Time of Ripening.
Joaneting (red and white	July
Early Harvest	August
Early Julien	August
Devonshire Quarrenden	August
Red Astrachan	August
Early Strawberry	August
Early Nonpareil	Sept. and Oct.
Ingestre Yellow	Sept. and Oct.
Mother Apple	October
Summer Golden Pippin	Sept. and Oct.
Sykehouse Russet	Oct. to Feb.
King of the Pippins	November
Ribston Pippin	November
Golden Pippin	November
Coe's Golden Drop	Dec. to May
Court Pendu Plat	Dec. to May
Cox's Orange Pippin	Dec. to Feb.
Braddick's Nonpareil	Dec. to April
Byson Wood Pippin	Dec. to April
Wheeler's Russett	Dec. to Feb.
Northern Spy	Dec. to April
Sturmer Pippin	Feb. to June
Winter Nonpareil	Feb. to March
Lodgemore Nonpareil	Feb. to June
Adams' Pearmain	February
Golden Knob	Feb. to April

KITCHEN.	Time of Ripening.
Keswick Codlin	August
Manx Codlin	August
Lord Suffield	August
Gooseberry Apple	August
Stirling Castle	Aug. to Sept.
New Hawthornden	Aug. to Nov.
Lord Derby	September
Cellini	October
Waltham Seedling	Sept. and Oct.
Cox's Pomona	October
Barchard's Seedling	October
Golden Noble	October
Beauty of Kent	October
Bess Pool	November
Betty Geeson	Nov. to May
Small's Admirable	November
Dumelow's Seedling or Wellington	November
Royal Somerset	Nov. to Jan.
Brabant Bellefleur	Nov. to Mar.
Warner's King	Nov. to Jan.
Kentish Fillbasket	Nov. to Jan.
Gascoigne's Seedling	Nov. to Jan.
Tower of Glammis	Nov. to Feb.
Blenheim Orange	Nov. to Jan.
Mère de Ménage	December
Norfolk Beefing	Jan. to June

Fruit Plantations with Standards or Half-Standards, and Under Fruit.

The plan generally adopted is to plant the trees (which are more frequently half-standards) 22 feet by 16½ feet, with Gooseberries or Currants between them 5½ feet apart. The cost of the trees, bushes, and labour comes to about £20 per acre. In about three years the berries will begin to bear, and to make some return. Trees grow faster and bear sooner in arable plantations than on Grass. The cultivation assists very much; and, of course, the more the land is manured the greater will be the crop. Apples, Pears, and Plums suit this class of planting best. Large returns are made by the bush fruit, especially if the plantations are near towns or railways, an acre of berries frequently realising from £20 to £30—indeed a large grower near Maidstone informed me that he had made £100 per acre from one piece of Gooseberries. This was, of course, an exceptional price. The sorts most used are—The Golden Drop, Whitesmith, Rifleman, Crownbob, Lancashire Lads, Velvets, and Warrington. Black Currants also are now attracting much attention. They require a strong, stiff soil. The sale of this fruit has increased much of late years; some say to make port wine; others, for use as a dye. However, the fruit is one of the most wholesome we have, and makes an excellent preserve. The Baldwin's Black is a great improvement on the old sort; but I am not certain whether this and the Naples are the same. I have seen trees lately which have borne as much as half a sieve each; and one planter in Rainham told me that he had grown 250 bushels on 2 acres at three years old, realising £118—less the expenses of picking and sale. In West Kent (especially on the ragstone), Filberts and Cob nuts are more grown than berries. The soil exactly suits them, and they bear most abundantly. The Cob nut is, however, fast taking the place of the old Filbert, being found much more productive and profitable. The nut is larger, but not so well flavoured as the Filbert; but it gets much quicker into bearing. I have seen some trees at Loose, near Maidstone, which grew 40 lbs. on a tree, and over £100 per acre was made off one particular spot. The trees are generally planted about 16 feet apart each way, and the pruning of them requires considerable skill and care; for this work the usual prices range from 2d to 3d. per tree.

Plantations Used for Berries only.

These plantations are generally planted to remain for a few years only, with a view to permanent profit. The former plan is the best, as the upper fruit is raised while the under fruit is bearing. Gooseberries and Currants are generally placed 6 feet apart each way, making 1,210 plants to the acre. The cost of plants ranges from 8s. to 15s. per 100. Many growers (especially with Black Currants) now plant an intermediate bush, which is taken out again after five or six years. By this plan they get a better return at starting. It is now found much better to form the young Black Currant as a stock instead of a bush. This is done by not taking off any of the buds when the cuttings are struck. The plant in this way forms a better head, and lasts many more years. In all kinds of plantation, it is most essential to have a man who thoroughly understands pruning, as the amount of produce is more or less dependent upon the intelligence of the cutter. As a rule, the young gardeners of the present day do not attend sufficiently to the art of pruning. They ought to have proper training at the nurseries before they undertake such responsible work. My experience is that not one in ten (even among professed gardeners) thoroughly knows his business. For educational purposes I can recommend M. Du Breuil's book on pruning as a good practical work. The drawback to fruit plantations which are under cultivation is the great cost of labour in keeping them clean; for, if roots and weeds are once allowed to get the upper hand, the expense of getting rid of them becomes enormous. As the fruit-picking season comes on, labour gets scarce, and there is great difficulty in getting work done. Our fruit plantations have all been dug well over once, many twice, and have had at the least four hoeings; yet I should be very much ashamed if any of you were to have seen them last August. In west Kent, on the light soils and shingle, both Raspberries and Strawberries are cultivated to an immense extent, and very profitably; but this is a class of fruit we have not time to discuss. I can only remark, as showing the progress of fruit cultivation, that in the space of about twenty years, probably not less than 1,000 acres of poor woodland about Farningham, the Crays, and Sittingbourne, have been grubbed, and are now growing fruit of this description, or of the other kinds I have enumerated. There is another kind of cultivation of dwarf fruit which, so far as profit is concerned, may be considered at present to be in a state of infancy, but which, I believe, will command great attention presently. I allude to the growing of the Apple on the Paradise or Doucin stock as bushes—the effect being the same as growing the Pear on the Quince, or the Cherry on the Mahaleb stock. The object is to avoid profuseness in growth, so that quicker results and greater bearing capacity may be obtained. Many of our amateur fruit growers have already done much to assist and encourage this most interesting class of fruit growing, and, I believe, when well understood, we shall find the system to be very profitable. The great benefit is, that by this mode of culture anyone possessing even the smallest plot of ground can have a succession of fruit. These dwarf trees can be planted 3, 4, or 6 feet, apart at first, and thinned as they get too large; therefore, any person having only 6 perches of land might have 100 trees.

Old Orchards.

I must conclude my paper with a few remarks on old orchards and fruit plantations, because we must all have observed that many such are much neglected. It is no uncommon thing to see trees running into one another, owing to the plant being too thick, or from profuse growth. Now a little thinning or shortening of the lateral branches will do great good. There should not be less space than 3 feet between the boughs of every tree, so that a ladder can be worked easily, and the sun and air let in; but large boughs (unless dead) should never be cut off if it can be avoided. It is often the custom to cut and thin out the inside of old Apple trees, but great injury is done by the practice after the trees have arrived at any age. A very good fruit grower once remarked to me, that he liked the interior of his Apple trees to be so thick that he could not see to shoot a partridge through them, and I quite agree with him, for we once had the greatest injury done to an old plantation of Apples by the clearing out of the inside of the trees. The plantations had borne 3,500 bushels in one year, and the next year my father was advised by the bailiff to have the trees trimmed out. The remarks of the man appeared reasonable enough. He urged that we could get no fruit inside but a few scrubby Apples, and that what went to support those boughs, if taken out, would help the other parts of the tree. The work was allowed to be done, but the result was most disastrous, as nothing like the same quantity was ever grown again. I believe manuring never pays better than when bestowed on old plantations. The treatment appears to give fresh vigour and bearing power to old trees, if they have any good wood left. It is not, however, always necessary to manure with dung; for feeding sheep with corn or oilcake answers much the same purpose. I end by advising every one to have each tree looked to and examined early in the autumn, and never to allow an unproductive one to remain or be re-grafted.

The Discussion.

In the discussion which followed the reading of this paper, the experience of several speakers went to prove that Apples and Pears do best on arable or cultivated land, while Cherries, on the contrary, do best on the Grass; also, that the rubbing of sheep against the tender bark of young trees, does them great damage, the oily particles from their wool filling up the pores of the bark. All fruit trees should be planted in September and October, as soon, in fact, after the fall of the leaf as possible. Mr. J. Clutton laid great stress upon this point, from having repeatedly observed that late planted trees were quite three years behind those which had been planted as soon as the leaves fell. The rental of land in Kent, let for cultural purposes, is as much as 50 per cent. higher for fruit than for ordinary crops. Cherries are reported to like a good loam, and it was remarked that at Sittingbourne, where Cherries on Grass do remarkably well, the soil, though loamy, is stiff enough for making bricks. It was observed that many of the Cherry orchards in Kent presented a stunted and exhausted appearance, owing to the trees having been re-planted time after time on the same ground, some of the Kentish Cherry orchards having occupied the same site for centuries. It was formerly the custom in Kent to sell the Cherries in orchards or plots by auction, the buyer gathering and marketing the fruit, and although this practice is still followed in many places, some of the more intelligent fruit growers find that it pays better to gather and market their fruit themselves their trees in this way being less injured, and a very much better price obtained for the produce. The cost of picking and marketing Cherries is about 3s. per sieve, and of this sum about 15d. goes for picking, and 14d. for carriage and marketing expenses. The additional 7d. is expended in sieves, ladders, and other necessary appliances. The secret of growing fruit successfully for market, it was stated, is to grow only a few prolific sorts of Apples, Pears, Plums, or other fruits which are popular in the market, it being a well-known fact that many first-rate fruits do not meet with a ready sale in Covent Garden and other large fruit markets. For instance, at Nottingham Wyken Pippin, Blenheim Orange, Dumelow's Seedling, and Cordwall are asked for by the buyers, who know their qualities from long experience, and they invariably fetch good prices, and it is just the same in Covent Garden. There certain Pears, such as Jargonelle, Williams's Bon Chrétien, Duchesse d'Angoulême, Beurré d'Aremberg, and one or two others, form the principal supply, not necessarily because they are of better quality than many others, but because they are well known both to the dealers and their customers. All growers for market experience great difficulty in selling new sorts of fruit, however good in quality it may be, because dealers are reluctant to buy comparatively unknown sorts when popular varieties can be had. Late Pears, such as ripen from October to March, were stated to pay best. Mr. Francis Rivers remarked that he had recently seen thirty miles of railway embankments, in Belgium, devoted to the culture of Pear trees on cordons, a system by which a large amount of fruit may be obtained from a limited area, and owing to the low stature of the trees they are easily protected when in bloom in spring. As material on which to train the branches he recommended oak posts, formed of old ships' timber, through which two galvanised wires are stretched. By taking out a trench on each side of the rows, and filling this annually in the spring with fresh soil, and thoroughly rotten manure, fruit equal to that produced in Jersey, on bush trees, may be obtained. He also remarked that, in 1873, he had planted fifty Duchesse d'Angoulême Pears grafted on the Quince, and this year each of them had produced, on an average, ten fine fruits, the wholesale value of each of which is now about 4d. At 6 feet apart, each way, an acre will contain 1,210 trees, the produce of which is worth upwards of £200 annually; but, of course, cost of trees, rent, labour, and other working expenses, must be taken into consideration. For market purposes, early or late varieties are best, especially late kinds, which, in the case of Grapes, Pears, Apples, and Plums, fetch higher prices than any others, owing to their comparative scarcity. Dealers give good prices for very early Pears, Strawberries, and bush fruit, to send to the north of England, where they fetch high prices, before the supply in that part of the country is ripe. It was said that Cherry and other orchards on Grass are greatly improved by being depastured by pigs, which enrich the soil, and also loosen it in their search for grubs and worms. One speaker said he found that the more pigs he kept, the more fruit he had; from 1½ acres of Apples and Cherries on Grass, he realised £40 annually, and from 4 acres of Apple trees, he gathered 400 bushels of sound fruit. In forming orchards on wet soils, draining, at least 5 feet deep, and burning the top of it, after the turf had been pared off, was recommended. After that it was stated the young trees should be planted about 6 inches deep, covering the roots with fresh soil, burnt clay, and turf, broken into nodules. This compost, being warmer and drier than the ordinary soil below, kept the roots near the surface, and the result was sound fruit; while trees planted deeply in the ordinary way struck into the cold sub-soil, and became covered with Moss and blight, and produced worthless fruits that kept badly. For the eradication of Moss, a mixture of soot, brimstone, unslaked lime, and clay was recommended. This, in conjunction with draining, was stated to constitute one of the best means that could be employed for invigorating old orchards. Calves were said to be very mischievous in young fruit orchards, and if these are admitted, as they generally are in country districts, the trees ought to be protected by wooden tree-guards or galvanised wire netting nailed to semi-circular bits of wood, leaving a hole in the centre, when put together, large enough to permit the natural expansion of the stem. Gooseberries form an excellent and remunerative undergrowth in fruit gardens, and a great demand having recently arisen for the fruit of Black Currants, these are also found to be a very paying crop. As regards Gooseberry caterpillar, one speaker reported his mode of dealing with it to be as follows:—He removes the old soil from beneath his trees, say in October or November, and burns it in the rubbish yard, substituting for it a covering of fresh soil and quicklime. This, he said, was much more efficacious than hand-picking or dredging with hellebore powder, pepper, sulphur, or similar substances. As respects Walnuts, several speakers alluded to their worthlessness in the border counties and in Scotland; but in the south greater success was met with, the nuts being more oily and better flavoured. This seems highly probable, the Walnut being a native of Asia; both in Persia and Cashmere it is extensively grown, and an oil, valuable for many purposes, is there expressed from its fruit.

DR. ACLAND ON THE OXFORD BOTANIC GARDEN.

Dr. Acland has addressed a letter to Dr. Hooker, urging him to reconsider the opinion he is said to have expressed against the removal of the Oxford Botanical Gardens to the parks. The lease of the present gardens is on the point of expiring, though the owners, Magdalen College, are, it is understood, prepared to renew it on terms favourable to the university. Dr. Acland points out that in the course of the last few years the university has been engaged in collecting the means for scientific research in Oxford to a central position. "The University," he says, "has purchased 80 acres of ground, on the fringe of which the scientific institute has been erected; there is room, therefore, and to spare. The cabinet of physics moved thither is developed into Professor Clifton's excellent laboratories. The chemical department, planned by Sir Benjamin Brodie, has been constructed without stint, though already it needs extension to meet Professor Odling's wants. Buckland's geology, arranged by Phillips in the court of the museum, is, under the care of Prestwich, gaining new significance. The fossil fauna can be readily compared with the extensive anatomical collection which, moved from Christ Church by the far-reaching liberality of the dean and governing body, are becoming, under Rolleston's energetic treatment, of great value for reference in every department of animal biology. The mineralogy has been re-arranged near the mineralogical laboratory by Professor Maskelyne, and a lithological laboratory is contemplated. All Hope's and Westwood's invertebrates are moved from the Taylor Buildings. The Radcliffe trustees, following the advice of Sidney Herbert and Mr. Gladstone, have transferred, for the common advantage, their large Scientific Library, and more than doubled their annual grant for books. Even an observatory has been instituted there under the direction of Mr. Pritchard, with the aid of Mr. De la Rue, as it were to crown the whole. One great department only is missing. Though the fossil flora is there, the modern botany, its studies and its teachers, remain aloof. I grieve to say, this separation, most injurious as it seems to me to the future interests of biological science in Oxford, is now said to be approved by you, and supported by your high authority." "The university," he adds, "has now, round her scientific institute, 80 acres of open ground, on which already a large assortment of shrubs is planted, and over which, assuredly, the professor of botany should exercise scientific control, and in which he might make, in the course of time, experiments of extreme importance, both to science and agriculture, with the professors of physics, chemistry, and biology close to him. All this, moreover, would conduce greatly to the instruction and pleasure of round Oxford." "I had almost forgotten to remind you," he says, "that the existing glasshouses are all rotten, and have to be speedily rebuilt; hence the need of a prompt decision. Rebuild these far away from the museum and the parks, and you have needlessly separated botany in Oxford from the other sciences, and the botanical professor and his students from their colleagues, and from all their appliances for generations to come."

[We wholly agree with Dr. Acland. We hope that if it be determined to make the garden in the very suitable space alluded to a beautiful garden will be formed, and not one like that at Kew, where the main essentials for securing good effect in a large national garden have been systematically violated. The opinion held by some botanists, that a botanic garden should not be arranged in a picturesque manner, will not receive much credence at a time when the richest and most extensive private collections occur in gardens the most beautiful. A garden to be worthy of the city of Oxford should be so arranged that the numerous tribes of hardy vegetation which we now possess should not only find room for their fullest development, but be grouped in such a manner that their varied beauty could be easily seen, not only individually, but collectively, in the garden landscape.]

CORRESPONDENCE.

HOT-BEDS ON EARLY VINE BORDERS.

TO THE EDITOR OF "THE GARDEN."

Sir,—I quite agree with Mr. Smith (see p. 430), that Vines starting naturally do not require their roots to be excited by artificial heat, but the months of October, November, and December, can scarcely be regarded as the time when Vines will start naturally into growth, and the advantages of stimulating the roots, when circumstances preclude the possibility of natural action taking place, has been often proved. Heating borders with hot-water pipes, laid underneath them, is undoubtedly the best plan of supplying heat to the soil, but this system is expensive; the cheapest and next best mode is to heat the soil as much as possible by means of fermenting material laid on its surface. The Vine, more than most plants, must have heat, in order to induce growth at this time of the year, and the more effectually it is applied, the better are the results. Vines, as Mr. Smith says, doubtless store up sufficient sap with which to start, but after this sap is exhausted, growth would stand still unless the roots were induced to carry it on, which is not the case when the outside border is cold. Many Vines break freely, and look promisingly until the shoots are from 1 to 2 inches long, when they seem to lose their vigour, a circumstance which never happens when the roots are situated in a temperature nearly equal to that in which the tops are. Of the benefits arising from bottom-heat in starting Vines, anyone may easily convince themselves by plunging a pot Vine in a bottom-heat of 60° or 65°, and placing another one where the roots will be subjected to a fluctuating temperature between 30° and 45° (which is about the winter heat of a sparingly-covered Vine border), both the canes being in a forcing-heat. Let these be examined after two or three months' growth, and the difference between them will be easy to see. The heat, which a foot in thickness of litter or leaves, even though protected by shutters when put on in August or September will be found to be far spent by December, and farther on, when heat is most needed. Such coverings should be removed, and replaced when forcing is commenced by material sufficient to renew the heat in the soil, which, when once up, does not decline readily under a thick hot-bed, under which the roots receive as it were new vitality, and are led up from a cold bottom towards the surface with the best possible results. J. Muir.

Sir,—I believe hot-beds on early Vine borders to be not only unnecessary, but positively injurious; for, after long experience and repeated trials, both with and without them, I have invariably found the Vines finish off their fruit in a more satisfactory manner when they are not applied. It is impossible to keep the roots of plants in a healthy vigorous state, if the soil in which they are growing is hermetically closed from the air, as would be the case with a mass of fermenting material laid on the border. I remember the time when concreting the surfaces of Vine borders was in fashion, under the erroneous impression that the practice added to their warmth, and protected the roots from heavy rainfall. This, it must be remembered, was considered necessary with a plant that requires as much, or more, water when growing than any other kind of fruit tree in cultivation. The Vine will stand a good deal of bad treatment, but it was not slow to resent this, and the practice has, I believe, been long since discontinued. The last I heard or saw of it was at a place in Hampshire, where a gentleman, after visiting Paris, and seeing some roots of trees that had been exposed to view in repairing the asphalte on the Boulevards, came back convinced that roots liked such treatment. Fortified by what he had previously read and heard respecting asphalte for Vine borders, he immediately set to work to have his own covered with this material; but he was not long in discovering that he had made a mistake, as the Vines soon showed unmistakable signs of ill health, and refused to colour their fruit, which they had previously done in a most satisfactory manner. I mention this to show how necessary it is that fruit borders should be properly aërated. Cultivators have already been warned as to the danger of loading the roots of old-established trees by laying quantities of soil on them, as is sometimes done to get rid of it easily during alterations. It was then pointed out that this induced ill health in the trees, sometimes, indeed, causing destruction. The same things would occur to Vines, were the mass of fermenting material allowed to remain on long; but its careless removal allows sun and air to act on the border, and, in some measure, to counteract the ill effects which its use may have produced during the short time it remained on. So convinced am I of the injurious effects of such coverings that I have long since discontinued them, and apply in their stead about a foot of clean dry Bracken, which I consider (next to leaves) is the best of all materials for protecting the roots of plants. If leaves could be kept loose and dry without blowing about, they would leave nothing to be desired in the way of root protection, as they intercept radiation from the soil, and effectually prevent frost entering to lower its temperature. As soon as the dry leaves or brakes are placed on the border to be forced, we protect them from the weather by placing over them any old lights, shutters, or tarpaulins that may be out of use at the time. As to Vines or any other deciduous plant storing up sufficient sap in the autumn with which to start in the spring, as stated by Mr. Smith, that is a mistaken notion, as there is continual loss of sap going on daily, and a fresh supply as continuously taken in and forced up by the roots; otherwise the stems would be dried sticks long before the season came round for them to start again into growth. Although we see trees denuded of leaves, it does not follow that they are at rest, and, indeed, they are not. Nature is never at rest in the full sense of the word, and although the roots of plants are not in the active state in which they are when forming and maturing fresh leaves and wood, yet their functions never wholly cease; on the contrary, they are always at work sending up a supply of sap, more or less, according to the state of the atmosphere. If proof of this is wanted, cultivators have only to sever a Vine from its roots, and they will soon find that the stored up sap only avails for a very short time, and that the vessels soon get empty. During the drying winds of winter large demands are made on the roots, as evaporation goes on at a rapid rate over the whole surface of a tree, and if the roots failed in responding to this, and ceased to send up a fresh supply to make good the loss, the trees, however large, would soon be dry timber, and cease to exist. The buds of plants, too, never wholly cease growing from the moment of their formation till they burst forth into leaf, unless, it may be, perhaps, for a short time when they are frost-bound. The process is slow and unobserved, but it nevertheless goes on hourly, from the time they begin to form at the axils of the leaves till, as observed above, they emerge from their covering. There is, therefore, only a partial cessation of activity and no rest in the true sense of the word. As for stored-up sap, that is renewed over again during the long winter months, and this shows the necessity there is for having borders in a moist, healthy state during the winter. This has been shown by Mr. Groom, of Henham, in your last week's issue (see p. 429), and the remarks he there makes respecting the requirements of fruit trees in winter are much to the point, as tending to confirm what I have said, and helping to explode the theory of stored-up sap. J. Sheppard.

Woolverston.

Curious Power of an Insect.—We have quite a number of different species of ichneumon flies which deposit their eggs upon the larvæ of wood-boring insects, and, in that way, help to destroy them. These borers in trees one would suppose were quite secure against the attacks of their parasitic enemies which cannot follow them into their retreats or dig them out, but Nature has provided a way to reach them although incased within apparently pretty solid wood walls. For instance, according to an able writer in "Moore's Rural," the Sugar Maple tree is infested with quite a large wood borer, which is the larva of the most beautiful and showy of the long-horn beetles, the Glycobius (clytus) speciosus of Say. This borer frequently passes upwards in the solid wood of the tree 2 or 3 inches from the outside; still it is not perfectly secure from its enemies when thus shut in, for the female of the great ichneumon fly, the Pimpla lunator, has an ovipositor 3 to 4 inches long furnished with a little saw on the end, by the aid of which she can make a hole straight through bark and wood to the said borer and place an egg upon it. I have caught this insect in the act, as many others have done; but the "wonder" part of the operation—at least to a good many observers—is, how she knows the exact position of the borer in the tree. The ichneumon hears its victim gnawing the wood and knows its whereabouts by the sound alone. It is not to be supposed that the human ear is quite as acute as those of an insect like the pimpla created expressly for seeking its victim by sound; still most wood-boring larvæ while feeding, make sufficient noise to be distinctly heard if the ear is placed directly against the tree or piece of timber in which they are at work. I have tested this a hundred times where the larvæ of the prionidœ, saperdas, elaphidions, and similar insects were at work upon trees. If anyone desires to hear the music of wood borers more clearly than is given off from a growing tree, they have only to bring a stick of powder-posted Hickory or Oak from the woodpile and set it on end in a warm room for a few days; place an end upon the bare floor, and if there are borers in the stick, the grinding of the mill will soon be heard clear and distinct, even at several feet distant.

A Neat Hardy Shrub.—Among the plants on Mr. G. Herbst's (of Richmond) stand, in Covent Garden, we noticed Euonymous microphyllus, a very compact and attractive little shrub, looking, at first sight, like a small Box, or a very close-growing Myrtle. It has, however, the very leathery leaves of its own evergreen relations, so that it will probably prove useful for town and sea-shore gardens. For general cultivation, too, we should say it will prove a valuable plant, from its distinct habit.

Hyacinths in Glasses.—These may be put in water now. The bulb should be placed, in the first instance, with its lower end not quite in contact with the water, which should be pure rain or pond water, and it need not be changed unless it becomes offensive. When the bulbs are in the glasses, they should be set in a dark place for about a month, then gradually inured to the light, filling up the glasses as the water subsides. The bulbs will flower in the greatest perfection if placed in a cool airy situation, well exposed to sunlight; but it is usually desirable to place some at least in a warm place, to accelerate the flowering period.—Wm. Paul.

An Old Oak Killed by Ivy.—We have a fine Ivy-covered Oak tree on the banks of one of the lakes in the grounds here. Its trunk, at 4 feet 6 inches from the ground, measures 26 feet in circumference, and the spread of its branches, the widest way, is 55 feet in diameter. The whole, with the exception of two small branches, is clothed with Ivy, which is now loaded with berries. So thoroughly has the Ivy gained the mastery over the Oak, that the latter has for some years past been fast falling into decay. The only portions that retain any vitality are two small branches, which this year produced a quantity of acorns. It is the finest specimen of the kind I ever saw.—James Ollerhead, *Wimbledon House.*

New Plant Labels.—At a recent meeting of the Horticultural Society of France, M. Ch. Joly exhibited some new labels, made by M. Girard-Col. de Clermont Ferrand, which are said to be both cheaper and more convenient than other kinds. These labels consist of zinc, of the same form and size as the wooden ones used everyday in gardens; and they cost about 4s. 6d. a thousand. They are pierced with a hole in order to admit of their being attached to trees and plants with at least as much ease as the wooden kinds. In addition to this, one side is left, so that the zinc may be written on with ink. The other is coated with a white substance, which makes it like parchment, and upon which one may write easily with a lead pencil.

Garden Turnips.—Among these, Cattell's Silver Ball is a handsome variety and good in quality; Early White Stone is soon fit for use, but it also soon runs to seed; the American Red Stone is a useful hardy sort; Chirk Castle, a black-skinned kind, is very hardy, and keeps firm and good for a long time; but Veitch's Red Globe has proved the best of all that I have tried. These were all sown the second week in April on a south border, and were well supplied, when necessary, with water. They grew well, but, later in the season, the white kinds rotted very much, while the red ones kept sound. Afterwards, the white kinds were sown on a north border with the same result; nearly the whole of the crop rotting away. I have now (November 22nd) another crop, consisting of red ones in use, which are all that could be desired.—W. Divers, *Wierton, Maidstone.*

Long v. Short Pruning of Roses.—The usual season for pruning Roses being near at hand, it is well to form some definite plan as to the system which shall be adopted. Where the object aimed at is a large display of bloom, I find that long shoots "pegged down" are preferable to close spur pruning. Raised banks for shutting out unsightly objects look remarkably well clothed with Roses in this way; and, for a background, standards pruned in a similar manner, with their long shoots brought down in the form of an umbrella, thereby concealing the bare stems, have a fine effect. Such varieties as Maréchal Niel, Gloire de Dijon, and Souvenir de la Malmaison, treated in this way, answer admirably, and are, indeed, more continuous bloomers than many of the so-called Perpetuals. That beautiful summer Rose, Charles Lawson, is, in its season, a really splendid object. After the beds are pruned and manured, we usually peg down the shoots with a quantity of stout pegs, varying from 18 to 24 inches in length, selected when preparing Pea sticks, and if good Ash or Hazel, they will last two or three seasons, and have a neat appearance.—J. Groom, *Henham.*

Ivy in Dwelling Houses.—No plant does better in a sitting room or hall than the common Ivy, or any of its green varieties. In countries where the cold is too great for the Ivy to flourish out-of-doors, it is much appreciated for house-culture. Being hardy and strong, it will bear ill treatment, but will pay for attention, and especial care should be taken not to make the rooms too hot for it; it will, however, prosper well in about the same amount of heat that the living occupants should have; that is about 65° Fahrenheit. Keep it cool and moist, but not too wet.

Cypripedium spectabile Forced.—Lovers of this charming hardy Orchid may be glad to know that it may be forced into bloom by potting in peat and placing it in heat in January or February, removing it to the conservatory just as it comes into bloom. Of course a succession may be kept up thereafter. Mr. Sturtevant has forced it very successfully for the past two years, his plants being started in February and flowering early in April. It will prove a precious addition to our stock of early flowers, if it can be obtained in sufficient quantity. The forced plants should be allowed to die down gradually in frames or pits, and would, so treated, be in good condition for planting permanently in large beds of peat and rich half-shady borders.

OBITUARY.

M. Alphonse Mas, President of the Pomological Society of France, has just died at Bourg, at the age of fifty-nine. M. Mas was well known as the author of several most valuable pomological works; the knowledge that he brought to bear upon his subjects was most extensive, and the loss that French horticulture—in fact, horticulture all over the world—has sustained by his death is a severe one.

NOTES AND QUESTIONS—VARIOUS.

Abutilon Boule de Neige.—Plants of this taken from the flower garden and re-potted are now full of flower, and their fine large pure white drooping bells prove most useful for dinner-table decoration.—Richard Nisbet, *Aswarby Park.*

Gas Water and Weeds on Walks.—A correspondent, writing to the "Journal of Horticulture," from Cole Orton, recommends gas water for the destruction of weeds on walks. I always (he says) use it here, and I find it more powerful and lasting in its effects as a weed destroyer than salt.

Horticultural Club.—We are informed that the next dinner of the Horticultural Club will be held at the club house, 3, Adelphi Terrace, on Wednesday next, December 1st. Members have the privilege of introducing a friend, but are requested to notify their intention of doing so by the 29th inst. to the hon. secretary.

Height of Plant-house Stages.—In many cases the stages in plant-houses are too high. When 2½ and 3 feet above the pathway, the pots and stems of the plants are too conspicuous; 15 or 18 inches from the ground would be a better height. The plants would then be looked down upon, and their beauty would be set off to greater advantage than it is under present arrangements.—M.

The Loquat as a Conservatory Plant.—The Loquat is worth growing in a conservatory for the sake of its fine long handsome leaves. For dinner-table or side-board decoration, branches of it cut, and placed in a small pot of sand, have a fine appearance; and, owing to the persistent character of its foliage, it will last some few days in a fresh state. Branches, furnished with a dozen leaves or so, have the appearance of young plants.—Chevalier.

Value of the Delaware Peach Crop.—The Peach crop in Delaware this year has been no less than 6,000,000 baskets. Of this amount over 3,000,000 have been sent off by rail, nearly a million by other conveyances, while 2,000,000 have been used for canning and drying. Consumers have paid for them £250,000, of which £200,000 has gone to the different transportation companies, and only £50,000 to the producers.

Seedling Yews Best.—I find seedling Yews preferable to plants raised from cuttings, which almost invariably grow one-sided—*i. e.*, like a rooted branch. In the case of seedlings raised from the Irish Yew, I find that few maintain their original form entirely. Where evergreen fences, or screens for shutting out unsightly objects are required, or shelter for tender crops, Irish Yews are very suitable, as they are less injured by clipping than most trees, and they maintain a healthy growth for an almost indefinite period.—James Groom, *Henham.*

The Barbarossa, the best late Grape.—Where very late-keeping Grapes are required, this is a valuable variety, as it does not shrivel so soon as many sorts. It does best, I find, when pruned on the long rod system, for, when close spur pruned, its produce is neither so abundant, nor so fine, as when grown on young wood. Inarched or grafted on any of the high-flavoured Grapes, I find it most satisfactory, its bunches being large and well-proportioned, and highly coloured. Its finely coloured foliage too, is invaluable for dinner-table decoration.—J. Groom, *Henham.*

Materials for Coach Roads.—Our coach road has a great deal of traffic on it—the consequence is it often wants repairing. Gravel has one or two disadvantages. It is easily shifted from its position if at all pebbly or sandy, and it clings persistently to the feet in wet weather, if it is clayey. Our parish authorities having recently done up the footpaths of the village with Mount Sorrel granite from the quarries near Loughborough, we determined to use the same material, and having made the foundation good with coarse gravel, we have faced all down with a 2-inch coat of granite (called at the quarries "gravel granite"), and the result, so far, is satisfactory.—N. H. P.

Brompton Plum Stock.—Can any of your readers tell me what kind of Plum this is and how it is propagated, *i.e.*, whether from cuttings or stones.—Prop.

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> "This is an art
> Which does mend nature: change it rather: but
> THE ART ITSELF IS NATURE."—*Shakespeare.*

WINTER-BLOOMING HEATHS.

FEW plants are more beautiful at this season of the year than this section of the Heath family, of which gracilis autumnalis and hyemalis may be taken as types. Beautiful little plants, of these kinds, bristling with flowers, may be met with on the florists' stalls in every market town. They are chiefly propagated and grown on to a flowering size in the nurseries round London, and then distributed in autumn to the extent of many thousands through the medium of country florists. Amateurs are very large buyers of these brilliant little plants, either for window boxes or to decorate the small greenhouse-conservatories, now so common in the suburbs of large towns. I have only mentioned the names of two kinds, as the treatment of all soft-wooded Heaths is the same, but others, such as Willmoreana, are also largely grown. The reason why, as a rule, amateurs fail so signally in the culture of this class of plants is, they use too much fire-heat, and give too little ventilation. It may be laid down as a principle, that Heaths cannot be kept long in health in a warm, close house. But it is astonishing how small an amount of labour and expense—rightly directed—is required to keep a collection of Heaths in good condition. There is no other class of plants that furnishes so much floral beauty for so long a time. If a house can be spared for their culture, the whole matter is simple enough, but I have seen good collections of Heaths grown where they had to be wintered in late Peach-houses, and other similar structures. A cool Peach, or what would now be termed an orchard-house, is a capital place in which to winter Heaths and other hard-wooded plants. And the plants may be moved occasionally when in flower, and when required, to the conservatory for a few days at a time, without doing them much damage. Anything like a close confined atmosphere would be their destruction, very little fire-heat, therefore, will be required, and the ventilation must be ample, and almost continuous, except in very cold weather. Keen, cold, cutting winds, must, however, be avoided. In summer they will do better out of doors on a coal-ash bed, in a sheltered place, partially shaded from the mid-day sun. Next in importance to a suitable temperature is the question of watering. Many plants are killed either by neglect or too much kindness; and, until one has had some experience in their management, it is difficult to hit the happy medium on which success depends. It is almost impossible to lay down any strict rule; but one thing may be stated confidently, that, if Heaths are ever allowed to flag from want of water, they seldom recover. True, they may not die at the time, nor for weeks afterwards; but some day, when one is least expecting it, almost without any warning, the plant will wither. Although, therefore, with this class of plants the greatest danger is to be apprehended from drought, overwatering must also be guarded against, or the plants will become sickly and die from an opposite cause. If a pot is full of roots and the plants in full flower, perhaps it may require watering twice a week, or even oftener; but at this season much depends on the state of the external atmosphere, and any estimate can, at the best, only be an approximate one, and should never be allowed to usurp the place of intelligent observation. One mode of ascertaining—and perhaps the most trustworthy one—when a plant requires water is to rap the side of the pot sharply with the knuckles; if the sound emitted be sharp and hollow, the plant either does then, or will shortly, require watering. If, on the contrary, it sounds dull and heavy, watering will not, for some time, be necessary. This, however, like all rules, may sometimes lead to error, as some pots, from their close structure, emit a dull sound, and others, again, from a contrary cause, the reverse. There may also be some difference in potting as to firmness of soil, which will affect the sound. In watering valuable hard-wooded or other plants the same person should always water them at all times, and, in doing so, should always take care that the ball is thoroughly moistened. In this way mistakes will not so easily happen. All pruning should be done just after they have done flowering; this, however, need not prevent the pinching of a strong shoot at any time, especially in the case of young plants. As regards potting and soil, it is next to impossible to keep Heaths in health for any length of time without good fibrous peat. In potting, the soil may be broken up, and passed through a quarter or half-inch sieve, and the rough lumps reserved to go over the drainage at the bottom of the pots; but, for all plants that require larger pots than 48's, the soil should be well broken up, but not sifted. The drainage should be ample, to allow the water to pass away freely; but not excessive, as it not only reduces the space for the roots, but renders it necessary to water more frequently, and thus increases the risk of the plants suffering from drought. Force the soil in firmly with a blunt stick; and this is a rule that should be observed in potting all hard-wooded plants. It is better to give medium shifts annually, until the plants are large specimens, than to over-pot. Plants that are pushed on rapidly by having large shifts, or by using stimulants, are usually short lived. What an amateur is most anxious about is to keep his plants in good health, and of a manageable size. Always take care before potting that the balls of the plants are moist, but not wet. The best time to pot is about June; and then, towards the end of July, or early in August, turning the plants out of doors for a couple of months. They will flower all the better for the ripening of the wood, which this treatment ensures. In potting, keep the collar of the plant well up. If buried too deeply, the damp settles round the stem, and kills it. Many people buy these plants in the market simply as window-plants, who have no greenhouse at all, and perhaps even no garden; and I have known instances where they have kept them in health for a long time under unfavourable circumstances, and in which a good deal of pleasure has been derived from so doing. The truth is, thoughtfulness and perseverance will often supply the place of skill. They will not live long in a coal-gas-impregnated atmosphere; but in a cool, light, well-ventilated room, I have known some of the commoner kinds of Heaths to keep in good health for a long time; and, as a rule, where window plants look healthy and flourishing, it is a sure sign that the rooms are well ventilated and the air pure; fever and other contagious diseases rarely visit there; and thus the care bestowed upon plants and flowers is, after all—independently of the actual pleasure experienced—a very good investment, and often saves expenditure in other ways. As I am writing this principally for the information of unskilled cultivators, it may be considered, perhaps, out of place to say anything about propagation, especially as such plants may be cheaply purchased; but I hold that anything that tends to make any branch of gardening less difficult helps it forward, and adds, at the same time, to its commercial importance as well as practical utility. Among amateur gardeners there are many who will not be deterred by any difficulties in attempting anything upon which they have set their minds. To propagate Heaths successfully the first requisites are clean pots—48's are the most useful size—and bell-glasses, about an inch less in diameter than the pots. I have known an amateur strike soft-wooded Heaths successfully under an old tumbler; a finger-glass is also a very good makeshift, but a close glass of some kind is absolutely necessary, for, unless the cuttings are kept in a confined atmosphere they will not retain sufficient freshness in the foliage long enough to form roots. At the same time, if the atmosphere is overcharged with moisture, most surely the cuttings will damp off, and it is the medium between these two extremes that should be sought for. Commence preparing the pots by placing one good-sized crock over the hole, laying it in such a position that the water can drain freely under it; over this place a few pieces of a smaller size, over these again a handful about the size of field Beans. The peat can be broken up with the hand, and passed through a quarter-inch sieve—the fibry portions placed over the crocks in the bottom of the pots, and about a fifth part of clean silver sand mixed with the remainder, and with this the pots are to be filled to within three-quarters of an inch of the top. The soil must be pressed down firmly, and about half-an-inch of clean sand placed on the top. Water the pots with a fine-rosed pot, and leave them an hour or so to settle. Whilst that process is going on, the cuttings can be cut off the plants with a sharp knife, and prepared, not taking off too many at one time, and avoiding exposure to the air, which causes them to flag. Nurserymen often put young plants into heat to obtain soft cuttings, and then by placing the cutting-pots in gentle heat afterwards they root much quicker; but amateurs cannot do this, and, even if they could, except they also possessed the requisite skill and knowledge, it would complicate matters, and render their failures more disheartening; but, given the requisite attention and the necessary appliances, Heaths are as easily rooted as any other class of plants, and more so than some. The young tops or soft points of the shoots make the best cuttings, and there is an advantage in having them from young, quick-growing plants; not old plants, that make smaller and more wiry growth, and, in the case of winter-flowering kinds, these may be obtained readily in June. Take them off with a sharp knife, about 1 to 1½ inches long, and trim off all the leaves from the lower half-inch with a small pair of sharp scissors. Place the bell-glasses on the top of each pot, and apply sufficient pressure to make a mark, and inside this mark dibble in the cuttings thickly—but not so as to touch each other—to the depth of about half an inch. They should have a sprinkling of water and a few minutes afterwards put on the bell-glasses. Till they are rooted they may be placed in any cool house or frame, or I have known them rooted in a north window in a cool room; but, whatever position they occupy, they will do better if the pots are plunged in some non-conducting material, such as sawdust or cocoa-nut fibre; or they may be plunged inside other pots two sizes larger; they must also be shaded from the sun by placing over the glasses sheets of paper, and the glass must be taken off every morning and wiped thoroughly dry inside with a cloth; this is, in fact, a most important point, and, if once neglected, all the other trouble counts for nothing. When the cuttings show signs of growth, and it is quite clear that they are rooted, a little ventilation may be given by propping the glasses up a little at the bottom, increasing this gradually until they can be dispensed with altogether. Watering must be carefully done, so that, as far as possible, the cuttings may be kept in a regular state as to moisture. Heaths, when grown slowly in cool, well-ventilated houses, are not subject to many diseases or insects. If a damp atmosphere prevails mildew may make its appearance, but this is easily kept down if taken in time by dusting sulphur in amongst the branches. E. Hobday.

Hardy Begonias.—It would be a great boon to many if some competent authority would tell us something about that glorious plant Begonia Veitchii, which is said to be hardy in favourable spots. If it really is so (and its native habitat is on very high mountainous elevations) it would be a most valuable acquisition. I had made up my mind to give it a trial last year, but my heart failed me in the shortening autumn days, and I put it into a cold frame until last May. It is so beautiful that I fear I shall do the same this year except I am favoured with a reassuring account.—[In Messrs. Veitch's nursery, at Chelsea, it has had no protection for several years, and it is one of the parents of the new race which we now possess of hardy tuberous-rooted Begonias.—Ed.] It produces flowers, of a brilliant vermilion with a dash of carmine, more than 2 inches across, and round, shining, dark green leaves; in fact, it is better than any of the tender Begonias.—Oxon.

The Ivy on Arundel Castle.—It is found that the Ivy which has so thickly clothed Arundel Castle has been eating so firmly into the work as to threaten destruction, and workmen are now employed in extracting the roots from the mortar, and in other ways restoring the walls, or rather rescuing them from destruction. This is being done with studious care, and the Duke of Norfolk personally visits the work to see that no desecration is committed. The mortar used it in the old building was not of a very substantial nature, and were it not for this timely interference, the wall might have gradually crumbled away. The broken edges of the ruin are being closed up with stone and cement, to prevent the penetration of the rain; and, although much of the rugged picturesqueness is destroyed by the process of stripping the Ivy and rounding off the top edges, it is, according to a writer in the "Times," a work of necessity, and one which need not alarm archæologists. Where walls are in good condition, Ivy does little or no harm.

NOTES OF THE WEEK.

—— Apples are keeping very badly this season, owing to the unusual quantity of wet. It is supposed the Ribston, which generally lasts much longer than Cox's Orange Pippin, is "going off" now. Oddly enough, some highly-coloured Ribstons sent to us by Messrs. Elwanger and Barry, of Rochester, New York, are quite firm, and very highly-flavoured.

—— Mr. Henry Bailey, of Feltham, is now growing the excellent Bouvardia jasminiflora very extensively for the sake of its flowers. He is now cutting from 4,000 plants of it, and the bunches of starry-white flowers, sent from these to Covent Garden, are very beautiful, and sweet as the most delicate Jasmine. It is kept in a warm house, not less than 65° at night, the pots standing on cocoa fibre and the plants necessarily freely cut back from the frequent cuttings for market. It is a lovely plant, which will probably outlive in popularity some of the newer kinds.

—— Lilies of the Valley forced, the first of the season, came into the London market last Saturday morning. Forced Asparagus, in small quantities, has now been in the market for two or three weeks, coming to the London market from France. There is now an abundant supply of the delicate Lettuce grown under the cloches round Paris, and most delicious they are. We wish the growers would pack them so that the fine soil attached to the rootlets would not scatter over the otherwise perfectly fresh clean leaves.

—— The few words relative to the arctic flora sent home with the last accounts received from the arctic expedition show that the little island on which Proven is built is rich in arctic flowers. The yellow Arctic Poppy grows everywhere; there are numerous Ranunculi and dwarf Azaleas; in some places the ground and rocks are covered with the beautiful Dryas octopetala, which is there what the Daisy is with us, and every sheltered spot has its colony of delicate Snowdrop-like Cassiope.

—— Mr. Simpson, of Wortley, sends us a sketch of one of the huge Vines for which California is now famous, although a "young country." It is the Montecito Vine, said to be the largest in the world (which we doubt), which stands at Montecito, four miles from Santa Barbara. This Vine is said to be nearly one hundred years old; its trunk measures nearly 4½ feet in circumference, rises 8 feet erect, and then branches in every direction, and is carried on trellis-work over a large area; it is said to have borne in one year 6 tons of Grapes; it is also said that 1,500 gallons of wine were made from one year's produce. We do not vouch for this statement. These statements are from the "Santa Barbara Weekly News."

—— We have received from Messrs. Standish & Co., of Bagshot, cut flowers of Gladiolus cruentus, an entirely new kind, imported from the interior of Natal. The plant produces a tall scape, from 3 to 4 feet high, furnished with long flag-like glaucous leaves, nearly an inch wide, the scape terminating in a spike of about twenty large flowers of a bright blood red colour. It will be welcomed as a grand acquisition to the flower garden, on account of its vigorous habit of growth, and the size and brilliancy of its flowers. One, and certainly not the least, of its good qualities, is its habit of blooming late in the autumn months, or nearly at the same time as Schizostylis coccinea, to which it will form a suitable companion.

—— In a paper read before the Palermitan Academy, Professeur Inzegna gives an account of a distinct kind of Orange, a sport detected on a Portugal Orange-tree. It entirely differs in character from the shoot on which it was developed, both in fruit, flowers, and leaves. In order to demonstrate the constancy of the character of this new variety, it was grafted on vigorous stems of Orange trees, such as the Bitter Orange and the Citrus Bigaradia, and has grown luxuriantly, always preserving its primitive characteristics unaltered. On every ground, therefore, it may be held as a distinct variety of the species to which it belongs, it being impossible to refer it to any of the numerous varieties now in cultivation. It is thus evident that we obtain new varieties of this precious race of fruit trees, much in the same way as we get new Roses or Azaleas from what is called bud variation. The variety to which we allude is called the Palermitan Orange.

—— We have received from Mr. Murray the second edition of Mr. Darwin's interesting little book on "The Movements and Habits of Climbing Plants."

—— Recent experiments prove that Coffee can be raised in every portion of California, where the soil is congenial. Snow does not appear to materially injure the plant. In nothern Europe according to Dr. Regel, it is cultivated successfully as a house plant.

—— The interesting collection of American Apples sent us by Messrs. Elwanger & Barry, and noticed elsewhere (see p. 493), may be seen at The Garden Office by any person interested in the subject, on presentation of card.

THE FLOWER GARDEN.

A HARDY SACRED BEAN.

(NELUMBIUM LUTEUM.)

This plant is very rare in the northern portion of the United States, and having a desire to see it in bloom, I one day last August took a journey of 60 miles, to the only locality where it is to be found in New Jersey. About 30 miles south of the city of Camden, opposite Philadelphia, which is in latitude 40° N., I found it in full flower, and it was a sight which I shall never forget, for I could almost imagine myself transported to the tropics. It grew in a beautiful lake, several acres in extent, one corner of which was filled with this plant. Some of the leaves rest upon the water like the Nymphæas, and these seemed to be the largest. I gathered one which measured 30 inches in diameter, and left many that were nearly as large. Others stood 2 feet above the water, as did all the flowers. Imagine hundreds of immense Tulips, in all stages of expansion —buds, half blown and full blown flowers, as large as a quart bowl, the petals being 5 inches in length—and you will have some idea of the appearance of this plant. The buds especially, were beautiful. The colour of the flowers is a rich sulphur-yellow inside and on the outside it is nearly the same, shaded with rich green. The curious pistil, recembling an inverted cone, is surrounded with stamens of a rich orange colour. The scent is like that of the Water Lily, but much more powerful. Then there were the seed-vessels, in all stages of growth, looking like roses of watering-pots, supported by slender sticks.

The Sacred Bean.

Both leaves and flowers grew so thickly that it was with difficulty we could push our boat about among them. They grew all the way from the shore to where the water was 4 feet deep. The large pointed tubers were imbedded in an exceedingly stiff sandy clay; over this lay several inches of soft mud, in which creep the long stems which start from the tubers, and from the joints of these stems the flowers and leaves grow. I pulled up some leaf-stalks and flower-stalks which measured fully 6 feet in length. In this locality the thermometer often stands at 80° to 85° in the shade in summer, and sometimes reaches 96°, falling occasionally in winter to zero; last winter, indeed, it fell to at least 10° below that point, and ice was formed 12 inches thick. This plant could doubtless be grown in England without heat, but I suggest that one corner of the lake, fronting the Palm-house, at Kew, be walled off for it, the wall reaching just below the surface of the water. The portion enclosed should be heated in the same manner as the tanks under glass, and I think this would guarantee the flowering of the plant, the foliage of which, however, independently of the bloom, would be highly ornamental in any pond or lake.

43, Great Queen Street, London. E. D. Sturtevant.

BLUE HYDRANGEAS.

The question of producing blue Hydrangeas crops up every now and then in gardening periodicals, and there is often an interchange of opinions on the subject, with, now and then, accounts of experiments more or less detailed, in which certain substances used in water, and planting in various kinds of soil, play a prominent part. It would appear that some of your correspondents have succeeded in reducing this matter to a system, by which they can change pink flowers into blue ones at pleasure. It is, however, surprising that, considering the number of years over which the discussion of this subject has extended, no special mode of effecting this change has been made known and generally adopted by horticulturists. To the practical gardener there may, perhaps, appear to be something puerile in merely wishing to change the natural colour of a flower. It may be that one is apt to think that the Hydrangea should stand upon its own merits, and that it is sufficiently interesting in the tints with which Nature has chosen to adorn it. However that may be, I must confess to a great regard for blue Hydrangeas, and cannot imagine anything much more beautiful than a well matched pair of this handsome plant—the one covered with flowers of its natural hue, the other with blossoms of a beautiful blue. Cannot some of your correspondents who have this transformation secret at their finger ends, grow a group of them and send them to one of the exhibitions during the forthcoming year, at the same time informing us how the change in colour was effected? This would be doing a real service to horticulture, and would gladden the heart of many a lover of this useful plant. I have grown Hydrangeas with flowers of a most beautiful blue, and that without the use of any artificial substances whatever, and it may, perhaps, be of interest to some of your readers to know how it was done, although I am sorry to say that the knowledge will not prove of any great practical value to them. When at Basle, in Switzerland, a gentleman caused me one day some surprise by saying that we could not get the Hydrangeas shifted until the blue earth arrived. My enquiries on the subject elicited the information that a kind of mould was dug in a particular spot in Alsace which contained the peculiar property of turning the Hydrangea blue. When potted in it, I must confess to having been rather sceptical on the point, but seeing is believing, and, when the blooming season arrived, I found that there had been no exaggeration. Every plant potted in this soil became beautifully blue, the rest, put into ordinary mould, producing pink flowers. At Mulhouse, Basle, and for many miles round, the production of blue Hydrangeas is, therefore, an easy matter. As far as I can recollect, the soil there had the appearance of a marly loam, with a strong tinge of red, and the only explanation I ever heard offered regarding this circumstance was, that it must be strongly impregnated with iron. I feel perfectly convinced that variety has nothing to do with it, as the plants to be shifted are taken indiscriminately, the blue ones of this year becoming pink again the next by change of soil, and *vice versa.* I may just state, in conclusion, that the influence of the soil was so marked, that a plant just beginning to colour would, on being carefully shifted into the "blue earth," assume, before becoming fully developed, a decided tinge of blue. J. Cornhill.

Byfleet.

THE FALLEN LEAF QUESTION.

In reference to the recent protests of several of our correspondents, as to the mischievous effect of the care usually bestowed on sweeping away the fallen leaves in gardens, the following furnishes some useful evidence on this point:—Leaf manure has long been held in high estimation as affording one of the best substances known as food for plants. Many, however, regard it as a purely vegetable substance, whereas it is rich in mineral matters, which have a direct and powerful tendency to improve the constitutional texture and character of any soil to which they may be applied. The alimentary substances which contribute to the maintenance and growth of vegetables are, for the most part, taken up in a state of solution by the roots. In this connection all the mineral ingredients discovered in plants are introduced into the system—such, for instance, as silex, lime, potassa, magnesia, allumina, &c. The sap, which is the medium of this transmission and assimilation, passes into the leaf, where the watery particles are thrown out by evaporation through the minute spiracles on the upper surface of the leaf, and the mineral matters retained and distributed through the plant, and in part through the vascular structure of the leaf itself. To illustrate more fully the position assumed, we present the following analysis of the leaves of the Pear tree, plucked in May, after the falling of the blossoms:—Carbonic acid, 11,560; silicic acid, 1,750; phosphates, 25,000; lime, 4,715; magnesia, 4,500; potash, 18,950; soda, 15,190; sulphuric acid, chlorine and organic acid, not determined; total, 81,715. By comparing the results of the analysis of the same tree made in the spring and fall, it will be found that the older the leaf is, the greater will be the amount of mineral matter contained in it. It will also be found that the foliage of trees contain more mineral matter than the solid wood of the trunk. In the matured foliage of the Elm upwards of 11 per cent. of earthy matter—ashes—may be found, while the solid wood contains less than 2 per cent.; the leaves of the Willow more than 8 per cent., while the wood has only 0·44; those of the Beech 6·67, the wood only 0·35; those of the European Oak 4·06, the wood only 1·22; those of the Pitch Pine 3·13, the wood only 0·27. These facts demonstrate conclusively that the application of leaves as manure must be succeeded by advantageous results. Every leaf applied in this way restores to the soil something of which it has, in the process of vegetation, been deprived. In this way the mineral ingredients of the soil are forced through a certain routine, and a constant circulation or reciprocity of action is kept up between the soil and the vegetable beings it supports and perfects. Entering the sap in solution through the mouths or spongioles of the terminal rootlets, they circulate through the system, and are ultimately deposited in the substance of the leaf, which, in due course of time, falls to the earth, and by its decay restores them once more to the soil, and in a condition the more favourable for again travelling the circuit in which they are destined endlessly to revolve. The soils of our forests, it is well known, never run out, or are so far exhausted as not to be able to supply abundant aliment to the gigantic vegetation they are found to support. The reason of this is obvious. They annually receive back the greater portion of the mineral constituents of the trees, together with no inconsiderable quantity of organised matter, derived from the atmosphere. Were the leaves to be removed every autumn from the forest lands, the same as grain, Grass, and root crops are removed from arable soils, the impoverishment consequent upon such a course would be no less obvious in the one case than the other; they would "run out"—the vegetation would be weak and sickly, and to support it we should be under the necessity of applying, annually, large and increasing quantities of manure.—"Country Gentleman." [Mr. J. Bain (late of Trinity College Gardens, Dublin) never allowed the leaves to be raked from under the branches of many fine shrubs and trees in that garden. The result was an open surfacing of leaf mould in various stages of decay, which encouraged surface roots and prevented evaporation, the branches being trained low to the earth the leaves gradually settled among them and were not a cause of untidiness.]

NEW SPECIES OF DAHLIA.

Horticulture has just been enriched with a new variety of Dahlia, discovered in Mexico by M. Roezl. This plant, of which (says the "Revue Horticole") we have seen living specimens, is quite distinct from all known varieties of Dahlias. It is hardly necessary to say that it has single flowers, but these are produced in such large numbers, and the beauty of the foliage is so great, that the Dahlia gracilis, as this new kind is called, is a plant that will occupy a prominent place in our gardens. M. Ortgies, writing of this plant, says, "M. B. Roezl, who was collecting plants in Mexico in 1873, sent us two small tubers which he gathered from a species of Dahlia, the flowers of which he had not seen, but the leaves of which led him to believe that it was a new variety. At its first flowering in the Botanic Gardens at Zurich, in the summer of 1874, we thought we had discovered in the new arrival the old D. coccinea of Cavanilles; but not having this variety at hand in order to compare the two, the matter rested there. Last summer M. V. Lemoine was struck with the beauty and floriferousness of this plant, which, when placed by the side of our common Dahlias, notwithstanding its single flowers, did not lose by the contrast, making up for its deficiency in point of doubleness, by the brilliancy of its colours, and by the greater number of its blooms, and appearing far superior as regards the graceful lightness of its foliage, and its handsomer aspect, its flowers being thrown up far above the foliage upon large peduncles, which are slightly inclined, and show the face of the flowers off to advantage. M. Lemoine begged us to give him a few of the flowers and leaves to send them to M. Carrière, in order that he might compare them with the D. coccinea which is to be found in the collections at the Muséum. M. Carrière was able to show that it was not the D. coccinea, and, in fact, by a reference to the "Botanical Magazine" (tab. 762), we have been able to discover specific differences of sufficient importance to permit us to describe our plant as a new species. Thus, following the work referred to, D. coccinea has singly pinnate leaves, like those of the common Dahlia variabilis, and they are likewise scabrous and somewhat finely dentated, whilst in D. gracilis they are always bipinnate, glabrous, and much crenelated, without mentioning other differences. Comparing D. gracilis with D. variabilis, which has pinnate leaves like those of D. coccinea, our plant shows to greater advantage as regards the lightness of its foliage; everything about it is more graceful—stem, leaves, peduncles, and flowers; and the name gracilis, which we have chosen for it seems most specially suitable to convey in one word an idea of its essential characteristics." An examination of living specimens of this Dahlia has shown that if, as far as its flowers are concerned, D. gracilis resembles certain forms of the D. variabilis or of the common variety, it is the opposite as regards the foliage, which, being finely cut, reminds one somewhat of Cosmos bipinnatus. It will be sent out in the spring of 1876 by M. Lemoine, of Nancy.

CHRISTMAS ROSES.

These will soon be in bloom, and are amongst the few hardy flowers to look forward to for some time. Of these some fine hybrids are now offered, which are superior to the original types both in vigour and size of the individual blooms. The crosses are generally between Helleborus abchasicus and H. guttatus, and also between H. orientalis and H. niger. Of the types, perhaps, H. niger maximus is the best. It grows to 2 feet in height, and has large white flowers 4 or 5 inches in diameter, but requires, as do all the varieties, to be well established before it is seen to advantage. There is also a small variety of H. niger (H. n. minor), but it is scarcely worth growing, excepting in large collections. H. orientalis is a good kind, with pale rose-coloured flowers. The leaves are deciduous and appear with the flowers, and are much divided. H. abchasicus has green flowers, with pale yellow anthers, and requires a well-drained soil and a sunny situation. H. atrorubens has purplish flowers, and does not bloom until late in March, whereas the other kinds are generally in perfection by February. H. purpurascens resembles a dwarf form of the preceding, and does not attain the height of more than 6 or 8 inches. The blooms are purple (as are also the stems) with white stamens, and they measure about 1½ inches across. An interesting winter garden may be made with the different species and hybrids of Christmas Roses alone, but we must bear in mind that we cannot see them in perfection except when permanently established, and I should say that they require at least two years to become so. The little winter Aconite (Eranthis hyemalis) is also related to Helleborus, and may be used as an edging to the larger kinds. I hope that these Christmas Roses (blooming, as they do, when there is nothing else) may have more attention paid to them, particularly as they force well, in addition to their other good qualities. Oxon.

Sifted Peat as a Mulch for Flower Beds.—All true lovers of hardy flowers begin instinctively at this time of year to bethink them how, now that their pets have gone to bed for their long winter sleep, they may be most comfortably tucked in and kept snug. About the time that Mr. Ellacombe was tenderly protecting, with leaves and fibre refuse, his favourites in rockery and herbaceous border, I, a humbler but not less earnest lover of flower beauty, was busy dressing my choicest border with a mulching of finely sifted peat. Am I right in supposing that this will answer in place of cocoa refuse? It looks warm and comfortable, the rich burnt sienna-brown of the peat contrasting effectively with the bright green foliage of Pansies innumerable and evergreen Alpines, as well as with the Grass sward into which the beds are let. That it keeps out frost I have already proved. My only fear is that it may rot and so cause decay to the stems of plants with which it comes in contact. The peat we get here is very light and feathery, and is thus, when riddled, the better adapted to the purpose for which I have used it. Our spring garden is so beautiful that it is a positive pleasure to do the smallest service in these dark cold days to plants which we know, from experience, will repay us so richly in the longer and brighter days to come.—Herbert Millington, *King Edward's School, Bromsgrove.*

Raising Lilies.—I am glad to see that Lilies continue to engage attention; only yesterday a friend asked me about the cultivation of the White Lily. I had only to refer him to Mr. Miles's remarks (see p. 455). Lily hybridising is up-hill work. Mr. Max Leichtlin, some time back, told me that he had tried many experiments but without much success. My experience is, that the seed usually comes up a reproduction of either the male or female parent; out of one and not a large batch of L. auratum seedlings we had three with the golden spots, like the variety known as L. auratum virginale. That hybridisation may be accomplished is proved by the Lily which was exhibited at South Kensington some years ago, which was undoubtedly a cross between L. auratum and L. speciosum, and this autumn by the splendid Lily bloomed by Mr. Anthony Waterer, of Woking, named L. Parkmani, which was, I believe, a similar cross.

L. Krameri sometimes blooms from very small bulbs; we had one this season which bloomed and seeded from a very small bulb. I should not be surprised if Mr. Miles's bulb, the size of a small Walnut, bloomed next year. Mr. Miles has one great quality for a successful Lily hybridiser, viz., youth; he can afford to wait the results of many experiments. I have planted some beds with many of the most beautiful species near together, so that they may cross according to their inclinations; I hope these unions may produce good results. L. Washingtonianum purpureum is very much more beautiful than any L. Washingtonianum that I have seen.—George F. Wilson, *Heatherbank, Weybridge.*

Nierembergia rivularis in Oxfordshire.—One of your correspondents (p. 100) asks about this, which, he says, he cannot grow. We have it here in a rather moist border facing north-east, where it does almost too well, spreading very rapidly, the soil being ordinary light garden loam with a dash of leaf mould in it. It is perfectly hardy and a pretty subject for the mixed border about the beginning of August; the flowers are cup-shaped and of a creamy-white colour, scarcely rising above the foliage, and the leaves grow thickly together so as to form quite a carpet. N. frutescens, a graceful plant, about 18 inches in height, has whitish-blue flowers, which are freely produced. It is a half-shrubby-perennial, but is not hardy on the level ground, though it may, perhaps, be so on rock-work or elevated banks in light and very well drained soils. It is not a showy plant; but, if admired, may be raised easily from cuttings. —Oxon.

Marchantia on the Rock Garden.—I want to know whether I should get rid of this or let it grow; I suppose Moss does no harm. Am I right in carpeting a good deal of the ground with such plants as Anagallis tenella, Acæna myriophylla, Sibthorpia europæa, and a bluish-white Veronica (of which I have not yet got the name), growing exactly like Anagallis tenella? I fear I was wrong in using it about plants of Opuntia, which damped off. Is it well to let these plants grow amongst such small plants as Petrocallis pyrenaica to prevent evaporation, or should they only be used amongst larger kinds of plants?—C. M. Owen. [The plant sent is Marchantia polymorpha, one of the Hepaticæ. Keep it down; it injures very delicate plants. It is quite right to allow small Alpine flowers to carpet the ground where it is not wanted for other subjects. It is also well to dot larger subjects over the carpet here and there; the larger plants, if they do not form carpets themselves, will grow all the better for the delicate turf around, which protects and keeps open the ground without exhausting it.—Ed.]

Dividing Hollyhock Roots.—Amateur cultivators of Hollyhocks are often troubled by their plants sending up so many spikes that the flowers are poor and comparatively valueless. To such persons, I commend the somewhat primitive, but still simple plan of lifting the old roots now and then and splitting them down the middle with a sharp knife. If there be an abundance of both head and root, two or even more divisions may be made, because all that is needful is a fair amount of root, a sound stem, and not more than a couple of stout shoots on the plant, to throw spikes for the next year. Above all things it is desirable that the mass of young shoots that form round the crown of the plants should be thinned out; and, if but a couple of the strongest be left, so much the better for the plant and for the succeeding bloom. When thus treated, the divided plants may then be re-planted, the soil being previously well-forked over, and a little rotten manure added. Although a gross feeding plant, it is probably better to apply manure in the shape of a liberal top-dressing in the summer than to work too much of it into the soil, as the plants are apt to rot in consequence. During the summer, the soakings of water the plants should receive wash the manure to the roots, and, at the same time, an even moisture at the roots is maintained. Seed of a good strain of Hollyhocks will be almost certain to re-produce good plants and flowers; and, if it be sown some time in May, good strong flowering plants will assuredly be the result.—A. D.

The Ethiopian Lily (Calla æthiopica).—If "W. W.," of Eaglehurst, and others, who grow this Lily, were to plant it out early in spring in good rich soil, in a partially shaded situation, instead of keeping it in pots all the year, they would find the result most satisfactory. There is no comparison between plants so treated, either in appearance or flowering capacity, and those grown in pots where they get but limited feeding, and, perhaps, suffer frequently from want of water. This, in the case of a half-aquatic, which this Lily is, is fatal to success, and, therefore, it should never be allowed to become dry. When planted out in a large body of soil, a good watering once or twice suffices to keep it in a thoroughly moist state; and if a mulching of short litter is thrown over the bed in which it is placed, it will keep the roots shaded and assist them materially in making their growth. Early in October, or before frost sets in, it should be broken up and potted in suitable sized pots, using some good rich soil for the purpose. It should then be placed in a close moist pit for a week or so, or close under a north wall, and kept syringed to prevent flagging. I have had plants of it thus treated, in 8-inch pots, that have produced six blooms at a time, and that have continued sending up others till they were pulled to pieces to be planted out again. It may not be generally known that this Lily is sufficiently hardy to be grown in a pond, provided the crown is submerged about 3 or 4 inches under water, so as to be out of the reach of frost. Although the top will be destroyed, it will break again from the crown, and, in shallow ponds, form a striking object. —J. S. D.

Combined Use of Hardy and Sub-tropical Plants.—Not the least of the advantages belonging to what is termed sub-tropical gardening is the great variety of plants that may be employed in it. Large beds for such tall plants as Castor Oils, Hemp, &c., may be edged with a broad band of Stachys, Golden Feather, or Santolina, which, with an undergrowth or carpeting of hardy plants suitable for such work, make a good display after the tall tender plants have been cut down and removed. The Brazilian Beet and Dell's black-leaved variety, are excellent plants for this purpose, as their rich colours look all the brighter after a heavy rainfall. Large masses of Pampas Grass are very effective in autumn, their feathery plumes contrasting strikingly with the deep green foliage; while, amongst the most brilliant of late-flowering plants suitable for this style of decoration is the Tritoma Uvaria, which continues to throw up its fiery spikes in mild seasons until near Christmas.—James Groom, *Henham.*

Wintering Pelargoniums in Cellars.—A lady enquires how this can be done; she has often heard that by hanging them up by the roots they will keep all winter in a good condition, but on trying that mode she has always failed. In answer to her enquiry, we ("Cultivator") may state that the practice of hanging up the bare plants sometimes succeeds, but there are very few cellars that possess the right degree of dampness. The best way to keep the roots sound and fresh is the following:—Take up the plants, shake off the earth from the roots, trim off the longer ones, and head back the tops freely; then place as many of these trimmed plants in a box or small tub as can be crowded in without much pressure, in the same position as they would stand when planted in pots. Then pour in among the roots as much dry clean sand as will compactly fill all the interstices, occasionally shaking it to settle the sand till the tub is nearly full. Place them in a cellar where they can receive as much light as possible, and keep the sand slightly moist by occasional watering. In very damp cellars no watering will be required. The roughest boxes will do. The plants will require a little occasional attention during winter, to see if all is right, and that they are not suffering from any cause, which a little experience on the part of the attendant will enable him to ascertain.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Shading after Frost.—The ill effects of frost on tender vegetation are greatly aggravated in many instances by sudden transitions from frost to thaw. Therefore, slight coverings do good in keeping the bright sunshine that frequently follows frosty nights off the frozen plants.—J. Groom, *Henham, Suffolk.*

Van Houtte's Harebell.—Campanula Van Houttei I find to be very suitable for choice herbaceous borders. It is easy to increase by division in March, and loves a good sound sandy loam to grow in. A good plant of it should, in the second summer of its existence, be the size of a beehive, and completely smothered with bells of a large size.—W.

Rose Hortense Mignard.—This is one of the prettiest Hybrid Perpetual Roses obtained for some years. Its vigour and fertility leave nothing to be desired, and the foliage is also very good. Its flowers are large, full, of fine form, and a beautiful carmine in colour. They are produced in terminal clusters, and last until frosts set in. The plant is suitable for growing either as a standard or dwarf, and is admirably adapted for forcing. It was raised by MM. Baltet, of Troyes.

Digging Choice Flower Borders.—A rule at Bitton is not to disturb the ground where hardy plants are grown by digging. The borders are so full of rare and valuable plants that the spade would, indeed, be a destroyer. The practice of digging borders is bad in every way. Clean and enrich the surface by all means, but do not mutilate aimlessly. The right way is to thoroughly prepare the ground at first, and then do with surface-dressings and cleanings till another total change is decided upon.—R. W.

Best Light and Best Dark Standard Roses.—I should esteem it a favour if you would kindly give me the names of three of the best dark standard Roses, and three of the best light kinds.—M. T. [The three dark kinds may consist of Prince Camille de Rohan, maroon; S. Reynolds Hole, crimson, flushed with maroon; and Louis Van Houtte, rich deep shaded rose. For three light sorts take Maréchal Niel, yellow; Boule de Neige, white; and Baroness Rothschild, blush. Another good selection is:—For the three dark, Charles Lefèvre, Madame Victor Verdier, and Baron de Bonstetten. For the three light ones, Souvenir de la Malmaison, Madame Alfred de Rougement, and Madame Vidot.]

THE GARDEN IN THE HOUSE.

HEATING PLANT CASES.

I am thinking of fitting up an indoor Fern case, 4 feet in length, with a heating apparatus, so as to grow two or three of the smaller kinds of stove Ferns, together with, perhaps, a few other plants requiring similar treatment; and I shall feel greatly obliged by being informed to what extent the warmth should be applied as bottom-heat. I find that in Miss Maling's plant cases, the whole of the heat is supplied by a hot-water tank, forming the bottom of one half of the case, and is thus communicated to the cocoa-nut fibre, or other material, in which the pots are plunged; while, on the other hand, I have seen plant cases heated by a coil of pipe passing round, just above the level of the soil. These arrangements I have been disposed to regard as Scylla and Charybdis, the two extremes to be avoided; and I, therefore, propose carrying an inch pipe, in connection with a small copper circulating boiler heated by gas, round the inside of my case, in such a manner that part shall be embedded in the plunging material, and part above the surface. I hope in this way to get a sufficiency of bottom heat; while, at the same time, the atmosphere of the case will be properly warmed. I apprehend that plants, plunged in an unheated material (even though the atmosphere above be warmed), would not have at their roots that heat which they would get in an ordinary hot-house, where they would not be plunged, and where the pot and the foliage of the plant would be equally exposed to warm air; and, again, I take it that an exclusive application of bottom-heat would have too much the effect of a forcing pit. As to these points, however, I am anxious to have advice, and shall feel obliged if some of your readers will give me the benefit of their experience in the matter. Philo-Flos.

DECEMBER BOUQUET FLOWERS.

Though this is far from being a favourable time of year for obtaining a good supply of cut flowers, still many varieties are offered for sale in our markets, and those, too, unusually useful for decorative purposes. Among them are the following, viz., Bouvardias, Begonias, Camellias, Chrysanthemums, Cyclamens, Heaths, Epiphyllums, Eucharis, Fuchsias, Gardenias, Gloxinias, Roman Hyacinths, Heliotropes, Lilies, Lilacs, Mignonette, Daffodils, Pelargoniums, Primroses, Spiræas, Roses, Stephanotis, Tuberoses, Tulips, Violets, and Veronicas. Surely, therefore, with such flowers as these at hand, there is no necessity for having flower vases and tubes standing empty, as one often sees them about this season. It may be remarked that flowers are expensive at this time of the year. True, some varieties are so, but not all; and a handful need not cost much, yet this handful, lightly arranged, will fill several specimen glasses, and, if varieties only be chosen which are lasting, such little bouquets will remain fresh for at least a week, provided the water is daily changed, and they are otherwise freshened up a little. Should Fern fronds be introduced, only those which have been well hardened off should be selected. From the list of flowers just given, enough may be obtained for vases, bouquets, wreaths, button-holes, and, indeed, for nearly every kind of floral arrangement, either large or small, according to the taste, or expense to which the decorator may wish to go. The bell-like flowers of the Arbutus are also very useful at this season for cutting, as are also the berries of the same plant a little later in the season. For small decorations, the Gladwin is too heavy; but for large ones it is most effective. A. Hassard.

NOTES AND QUESTIONS ON THE GARDEN IN THE HOUSE.

Ferns for Room Decoration.—Few plants are so well adapted for indoor decoration as the cool-house Ferns called Pteris serrulata, P. longifolia, and P. cretica albo-lineata, also the several varieties of Adiantum known as Maidenhair Ferns. These, if allowed to make their growth in a cool temperature, form excellent room or window plants the whole year round. It is after forced growth in a high moist temperature that they so quickly suffer from cold draughts, which have little effect on plants gradually and well hardened off.—James Groom.

Blechnum corcovadense a Good Room Plant.—This noble Fern is very effective during winter in rooms, the dry air, warmth, and light of which seem to suit it. It is easily cultivated, requiring in summer only ordinary care and attention; but, in a low temperature, it dislikes moisture on the fronds. It delights to grow in bright sunshine, and the stronger the light the more beautiful the deep red of the young fronds becomes, and the longer they will retain their warm tints.—A. B.

Attar of Roses.—Rose oil comes almost wholly from the southern slopes of the Balkan Mountains. There are at least 150 places where its preparation is carried on, the most important of all being Kizanlik. The Roses are planted in rows, like Vines. The flowers are gathered in May, and, with the green calyx leaves attached, are subject to distillation. Five thousand pounds of Roses yield 1 lb. of oil. As may be expected, so valuable an article is often adulterated. The added substance is "rosia" oil, often called Geranium oil when procured from Egypt. This oil comes from some species of Grass.

THE LATE REV. WILLIAM HICKEY, M.A.
(MARTIN DOYLE).

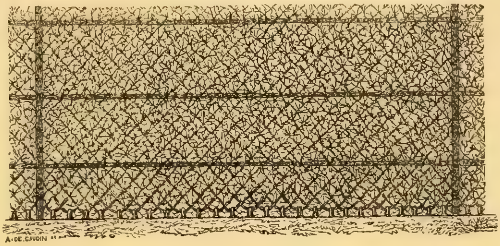
The "Wexford Independent" contains some details of the life and works of this earnest worker in the cause of the arts of rural life. He was the eldest son of the Rev. A. Hickey, D.D., rector of Maragh, county Cork; was scholar of St. John's College, Cambridge, where he graduated as A.B., and subsequently took the degree of M.A. in Trinity College, Dublin. He was ordained in 1811, and appointed to Dunleckney, diocese of Leighlin; became rector of Bannow, in the diocese of Ferns, in 1820; rector of Kilcormuck in 1826; rector of Wexford in 1832, from which he was promoted to the parish of Mulrankin in 1834. Previous to his departure from this town for the new sphere of his spiritual duties, an address was presented to him signed by all sects and parties—the late William Whitty, who had been selected the first Catholic Mayor since the Reformation, heading the list, followed by upwards of 130 names. The address was presented by the late Dr. Renwick (hon. secretary) in these words:—"It has happily fallen to my lot to be the medium of conveying to you the accompanying address, signed with an unanimity that has never been exceeded, if indeed it has ever been equalled, in any community composed like ours of Protestants, Roman Catholics, and Dissenters. Looking at the state of society in this divided country, never was a higher compliment paid to the character of any individual than this truly representative address embodied." Therefore, we need not add that, as a parochial clergyman, he was highly valued by his flock; and in his public ministrations, both as reader and preacher, his capabilities were acknowledged to be of the highest order. As a writer he early commenced to advocate the improvement and social progress of his fellow-countrymen. So far back as the year 1817 he published a pamphlet on "The State of the Poor in Ireland." Afterwards appeared several letters from his pen under the *nom de plume* of "Martin Doyle," by which name he has been so generally recognised as an author. "Hints to Small Farmers" succeeded those of "Martin Doyle," and were read with deep interest, and the sequel proved with signal advantage, by those for whose welfare they were written. They were followed in rapid succession by the subjoined well-known works:—"The Hurlers," "Common Sense for Common People," "Irish Cottagers," "Plea for Small Farmers," "Address to Landlords," "The Kitchen Garden," "The Flower Garden," "The Illustrated Book on Domestic Poultry," "Hints on Gardening," "Hints to Small Holders on Planting, Cattle, Poultry, Agricultural Implements and Flax," "Hints on Emigration to Canada," "Hints on Health, Temperance, and Morals," "Book on Proverbs," "The Village Lesson Book," "Cyclopædia of Practical Husbandry," "The Labouring Classes in Ireland; an Inquiry as to what beneficial changes may be effected in their condition." He also translated from the French "Sermons by Monad," and for a length of time was a regular contributor to "Blackwood's Journal of Agriculture," "Chambers's Journal," and to various other periodicals of the day. In all these publications he took the broadest philanthropic views, studiously avoiding religious and political controversy. His latest production was "Notes and Gleanings of the County of Wexford," a work abounding with statistical facts and information. In conjunction with the late Thomas Boyce, of Bannow, he started the South Wexford Agricultural Society, and founded the Bannow Agricultural School, which was the first of the kind established in Ireland. He was a member of the Royal Dublin Society, and was awarded their gold medal in recognition of the services rendered to Ireland by his teachings; and Government granted him a pension from "The Literary Fund." For many years he held the commission of the peace for the county Wexford, and no man ever discharged its functions with more fidelity. He died comparatively poor; for, throughout a lengthened span not accorded to many he invariably denied himself that he might be the better able to assist others. On Sunday the 17th October he performed divine service in Mulrankin church with his usual vigour. On Friday he felt slightly indisposed, and gradually sank, suffering no pain whatever, until the following Sunday, when he died at the patriarchal age of eighty-eight.

Too Large Sewers.—Sewers choke and overflow during heavy storms, mainly because they are too large for the work they are ordinarily called on to perform. If a sewer is so small that its usual flow is concentrated to a sufficient depth to carry before it any ordinary obstruction, it will keep itself clean. But if, as is often the case, it is so large that its ordinary flow is hardly more than a film, with no power even to remove sand, we may be quite sure that its solid refuse will gradually accumulate until it leaves near the crown of the arch only space enough for the smallest stream; and, in order to make room for a rain-fall flow, the whole sewer will have to be cleared by the costly process of removal by manual labour. —Col. Waring.

THE FRUIT GARDEN.

FRUIT TREE HEDGES.

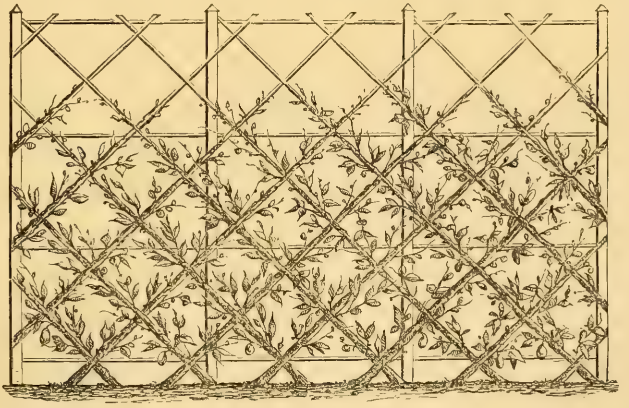
In France and Belgium, more than elsewhere, have the vacant spaces along the lines of railway been utilised for growing fruits—principally Pears—and it is often the case that, instead of the trees being in the form of standards, they are trained as is represented in the accompanying engravings, so as to form a hedge along both sides of the line. Sometimes a cheap fence of galvanised wire is used, and the trees are trained so that the branches cross each other, as is shown in the illustration; and occasionally a cheap and slender kind of wooden fence, common in France, is substituted for the wire, and it is found that, by training them in a way to cross and support each other, before the fence decays the trees are perfectly self-supporting, and form a very neat fence themselves. This is a plan well worth adopting in many gardens where neat dividing lines are desired. It is quite possible to train espaliers of the choicest varieties of Pears so that they shall, in time, be self-supporting. Established trees crossed in this way should not be allowed to get into a rough hedge-like condition, but, on the contrary, should be trained as neatly and perfectly as trees on a trellis or wall. No fraying of the branches, resulting from their being interlaced, need take place. A shoot should be taken along the top so as to act as a finish and tend to hold all tightly together, and, thus constructed, the whole will look much firmer and neater than the ill-trained espaliers that one too often sees. H.



Fruit-hedge fully furnished.

PEACH GRAFTING WITH FRUIT BUDS.

A new way of grafting fruit buds upon the Peach tree, successfully attempted by M. Baltet, is thus reported on by MM. Lepère and Jamin. The graft in question consists in detaching, at the beginning of September, the sprigs or clusters of flower-buds, which are left full length; in bevelling off, as sharply as possible, the part to be inserted into the stock; in scooping out these twigs with care, and in placing them, without loss of time, at the base of vigorous branches upon espalier trees so as to furnish bare spaces, and to obtain, in some instances, a rapid fructification for proving different varieties. The graft, thus prepared, is inserted into the stock by means of an incision, which should be exactly the length of the bevel—an incision, the lips of which it is prudent to open by degrees by the insertion of the scion, so as to avoid, as M. Baltet says, starting the gum. The graft should be at once ligatured and shaded by a leaf of the tree from the effects of sun heat; this leaf may soon be dispensed with, but the ligature should not be taken off till the spring, when the fruit will have set. Without denying the efficacy or the utility of this application of the graft, which is due, according to MM. Baltet, to M. P. Payn their grafter, we believe that we are able to say that it is similar to that which has been practised with success for some time upon the Pear tree, but that this mode, applied to the Peach, presents certain difficulties; that it will not, although the author is of that opinion, exempt the part operated on from gumming, and, finally, that the ligature requires certain surveillance.



Fruit-hedge half furnished.

Pears in Huntingdonshire.—Pears here have never, in my recollection, been finer than they are this year. Amongst the best may be mentioned Gansel's Bergamot, Marie Louise, Louise Bonne of Jersey, Beurré Diel, Winter Nelis, and Vicar of Winkfield. To have Gansel's Bergamot in prime condition, it should be gathered a few days before it is quite ripe; for, if allowed to hang too long, or until it begins to drop, it never attains that fine melting state which is so much appreciated. Marie Louise, on the contrary, will not suffer any deterioration by being allowed to hang on the tree as long as possible; and its season may be considerably extended by so doing. The abundant moisture of the past season has given the kinds I have named increased size; and the flavour of such as have been as yet tried has been at least equal to that of former years, if not, in some instances, superior to it. But there is a reverse side to the picture, forsome of our best winter Pears, among which may be named Glou Morçeau and Easter Beurré, are decidedly very inferior, both in size and quality, to what they ought to have been. Glou Morçeau usually does well on our soil; during the last seven years it has never failed to bear a good crop, but this year many fruits of this variety are deformed, cracked, and badly attacked by fungus. We have it both on an east and a west wall, and the best fruits invariably came from the western aspect.—E. Hobday, *Ramsey Abbey, Huntingdonshire.*

Large Belle Angevine Pears.—M. Baltet, in his interesting article on French Pears (p. 370), incidentally mentioning the weight to which this Pear can be grown, says—"In 1874 Jersey produced a specimen of this variety which weighed 5 lbs. 8 ozs., and was sold for £10." This is, no doubt, an unintentional error of M. Baltet's; and, as Pears of my growth have been recorded in most English and foreign papers as "probably the largest ever grown," the "Revue Horticole" of Paris calling them unparalleled," and the German papers "fabulous," may I state that the largest was 5 lb., and that, having been injured in travelling to a provincial show, it partly decayed, and the rest was eaten here, forming, even in this state, a handsome dish at the mess of the 6th regiment. As to the common opinion respecting this Pear being tasteless, it holds good only of such specimens as are generally sold of it, *i.e.*, green and weighing about 1½ lb. Even Chaumontel Pears, under a certain size, are valueless.—Thos. C. Brehaut, *Richmond House, Guernsey.*

Ripening Pears after they are Gathered.—An American fruit grower states that Pears after being gathered should be placed thinly and evenly on the floor of a cool room, on a blanket previously spread, and covered with a second blanket. Thus ripened they rarely decay at the core.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Draining Lawns and Walks.—The heavy rainfall of the present autumn has been such as, in the case of lawns and pleasure grounds, to show where any defect or deficiency in the way of drainage exists; and, where work of this nature has to be done, there is no better time than the present for carrying it out. Here, as in other parts of the garden, the depth to which the drains should be cut must be regulated by the character of the land. On lawns where the soil is retentive, enough open material, such as clinkers, brick rubbish, or burnt clay should be placed over the pipes in such quantity as to fill up to within 10 or 12 inches of the surface. By this means water will much more quickly find its way into the drains. The necessity for removing all stagnant water, consequent upon badly-drained walks, is equally pressing. It frequently happens that however well such work has been done in the first instance, the drains get choked up in the course of time by the roots of trees. Where there are indications of any defects of this kind, they should at once be remedied, in all cases putting in tiles large enough to carry the water off as fast as it falls, even during the heaviest thunder showers. Any insufficiency in this respect entails a great deal of labour by the displacement of the gravel and the accumulation of soil and sediment upon the surface, after which a walk never looks well until the gravel is turned or some fresh material added to the top. For drains in paths the pipes should be always laid sufficiently deep to be out of the reach of the severest and most protracted frosts; for, when ordinary unglazed pipes are used, if frozen with the moisture which they must have absorbed in them, they are certain to be destroyed. Nothing less than a depth of 12 or 14 inches is enough to keep them out of harm's way from this cause.

Walk Making.—It is very common, especially in small suburban gardens, to see the walks so badly made in the first instance, even when enough gravel has been used, as to render them soft and uncomfortable after any considerable amount of rain has fallen. This generally arises from the gravel being spread on them without care, rough and fine being indiscriminately mixed together. Where such a state of things exists, the best way is to begin at one end, and sift the whole over again, passing it first through a $1\frac{1}{2}$-inch meshed riddle, and afterwards through a second of $\frac{3}{4}$-inch mesh, putting the large stones at the bottom immediately over the drains, the second size upon them, and the fine gravel on the surface. By this means, one of the greatest comforts in a garden may be secured—an efficient path, through which the water can quickly penetrate, leaving the surface dry and pleasant to walk upon. An essential in all walk-making is to have a sufficient number of "eyes" or gratings to carry off the surface water. Where the ground is hilly, these should be placed at short intervals apart, as, when the descent is quick, there is the most danger of the gravel being washed up during heavy rains. The formation of new walks, where required, should now be proceeded with, for at no time during the whole year can such work be carried out with greater advantage than at present, before the winter frosts set in.

Clearing up and Storing Leaves.—Now that the leaves have, for the most part, fallen, means should be taken to clear up pleasure grounds for the winter. If possible, choose dry weather for sweeping lawns and gravel walks; for, not only can the work be done much more quickly when the ground is dry, but both Grass and gravel have a much better appearance than when clearing up is done during wet weather. Leaf mould is so essential for mixing with potting soil, and for other purposes, that it is always well to secure a good stock of leaves for this purpose, and such kinds as those of Oak and Beech are preferable to the softer sorts, like those of Chestnut, Plane, Elm, or Lime; but, where the former cannot be had, the latter should not be rejected. In addition to their use as leaf mould as many as possible ought to be secured as will suffice in the spring to mix at the rate of one-half to an equal quantity of manure for hot-bed making, as well as for forcing Seakale and Rhubarb during the winter. The leaves, as gathered, should be regularly stacked up in a heap in the frame ground or some similar out-of-the-way corner, and enclosed so as to prevent their being blown about. In gardens where leaves abound it is much better to dig all in that lie amongst shrubs than to rake them off; as, when buried within reach of the roots of the shrubs, they materially assist them, especially if the roots of the latter are at all robbed by those of deciduous trees.

Planting Trees and Shrubs—Any contemplated changes, such as alterations in the shape of clumps or borders, or the planting of specimen trees or shrubs, should no longer be delayed; but, in all work of this kind, either in large or very small places, judgment should be exercised, especially as regards the planting of single trees and shrubs on lawns or Grass plots. The highly objectionable system of dotting the whole surface over in an unmeaning fashion, without any apparent object, until there is scarcely an open spot of green turf left, is one of the greatest mistakes that can be made. It is also necessary to select trees and shrubs suitable, not only to the soil and locality in which they are to be planted, but also to choose such as, by their natural size and proportions, are suited to the extent of the garden they are to occupy. As soon as they are planted they should at once be securely staked so as to prevent wind-waving, a point that cannot be too much insisted upon, for it often happens with those who have not had much experience in tree-planting that no supports are placed to transplanted trees and shrubs until they have been rocked about severely, and even sometimes half blown down. When such has occurred it must by no means be supposed that by returning them to their perpendicular position and then staking them the mischief is repaired, as the action of the wind will have wrenched and strained their roots in a way that inflicts serious and frequently permanent injury to the tree. With heavy-branched evergreens, such as Conifers and Taxaceous trees, the effects are much worse than in the case of trees that are deciduous. In gardens of moderate dimensions great mistakes are often committed in planting trees for shelter or screen. With most people a feeling exists that, be their garden large or small, it should be so private as not to be overlooked from without. To prevent this trees, as Poplars, are often planted as boundary lines; but they generally harmonise badly with the surroundings. Trees of this kind have little to recommend them except quick growth, as, during half the year they are naked, and are consequently of little value for affording privacy. If, instead of using deciduous trees such as these, the hardy and free-growing dense-leaved Pinus austriaca, or the more upright-habited P. Cembra were employed, either by themselves, or, for variety, mixed with others of a kindred character, for both use and appearance, they would be infinitely better.

Forcing Seakale.—Where Seakale is required for use early in the ensuing month, means should at once be taken for applying heat to the roots. There are two methods by which it may be forced, viz., either by placing over the crowns, where they grow, the ordinary pots employed for the purpose, and covering them up with fermenting material, such as leaves, fresh stable manure, or a mixture of both, or by lifting the roots and forcing them elsewhere. Where leaves can be had in sufficient quantities, these are much to be preferred to all other material, as they afford a more gentle warmth, and are not liable to get too hot, or impart a disagreeable flavour to the Kale. In forcing under pots, the whole space between them should be filled up with fermenting matter, covering the lid, with which they are provided to the depth of a few inches. When the whole is complete, two or three sticks, to test the heat, should be inserted in the heating material. These ought to be frequently examined, to see that it does not get too hot, in which case the produce is forced up too quickly, which makes it thin and weak, instead of having the short thick crowns of which well-managed Seakale consists. If the sticks feel a little warm, it is sufficient to produce Kale of 8 or 9 inches in length in five weeks or so from the time the material has begun to ferment. Should there be any indication of too much heat, some of the fermenting material ought to be removed from the tops of the pots, so as to cool it. By this method of growing Seakale, the same roots will bear forcing in the beds in which they are grown for years, without replanting; but the produce is not usually so fine as when the roots are taken up and placed on a bed of leaves or other fermenting matter. For this reason, and the fact that much more can be grown on a given space—consequent upon the closer planting which the latter system admits of—it is to be preferred. Where the roots were planted as advised in spring, they will now be in a condition for taking up; and it is best to at once lift all that are likely to be required for the season, selecting the strongest crowns for forcing. Those not wanted for immediate use should be heeled in in a few inches of soil or ashes, in any place out of the reach of frost. At the time of taking up, the weakest crowns, and all the whip-thong-like pieces of roots should be placed by themselves in a little moist soil, where they will not get frozen, and be kept for re-planting in spring. A bed of leaves, about 2 feet thick, will be enough, made up so as to place on the top of it a small garden frame, or large box of any kind. In this, put 10 inches of ordinary soil, and in this plant the crowns about 3 inches apart each way. On the top of the frame, or box, place a lid or shutter, and cover up the sides and top, so as to keep in warmth, and totally exclude light. By this means, Seakale can be grown by amateurs in perfection. Where there is a Mushroom-house at work, the crowns may be placed in it; but, here again, especially when a considerable body of fermenting stable manure exists, the flavour is not nearly so good as when it is grown on a bed of leaves.

Flower Garden and Pleasure Grounds.

Fallen leaves should be cleared from lawns and walks, and stored near where they are likely to be required for hot-beds and other purposes. It is also necessary, for appearance sake, to keep the margin of shrubberies free from littery matter of all kinds; but it is at the same time unadvisable to wholly remove fallen leaves from clumps or plantations of shrubs and trees, in which they form a mulching or surface-dressing; and to prevent them from being blown about by the wind when in a dry state, a portion of soil should be scattered over them. The planting of Roses should now be finished, if this has not already been done; standard plants should be securely staked, and the surface of the soil should be mulched with good manure. Should very severe weather set in it will also be advisable to protect some of the more delicate varieties of Roses from the effects of frost. Standards should have a portion of soft straw, hay, or Fern loosely bound round that portion of the head where buds may have been inserted; and dwarf bushes should have some similar material shaken lightly over them. Until a comparatively recent date, it was considered hopeless to attempt the raising of new and improved varieties of Roses in this country, a Continental soil and climate being deemed absolutely necessary for their production; but, during the last few years some good Roses have been produced in England. Therefore, wherever seed has been collected, it should be freed from the hips or husks, thoroughly separated, and sown at once in light rich soil in seed pans, which should be placed in a cold pit; or the seeds may be sown in the open air in drills some 18 inches or 2 feet apart, at a depth of 2 inches, selecting a portion of rich light soil for the purpose. In such a situation, most of the seeds will vegetate during the forthcoming month of May, while a few of them may remain dormant until the spring of 1877. Seeds of the Briar, or Dog Rose, for budding or grafting upon, may also now be sown, and treated in a similar manner. In the out-door Fernery, all decayed fronds should be allowed to remain upon the plants during the winter, as they afford protection to the crowns; and, in addition to this, let delicate kinds also have the protection of a few Spruce twigs, or Laurel boughs, placed around them. Some of the more choice Alpine plants should likewise have similar care bestowed upon them. All wheeling on walks should, if possible, be done on frosty mornings. In order to ensure the safety of such plants as Tritomas, Yuccas, and others, which may be growing upon the margins of shrubbery borders, or the lawn, or similarly exposed situations, it will be advisable to place round their bases a portion of straw, dry Fern fronds, or any similar material, keeping the same in position by means of a few pegs or flints. The surface of beds containing roots of such plants as the Aloysias, or sweet-scented Verbenas, Erythrinas, Fuchsias, and similar half-hardy plants, should now be covered to the depth of at least 3 or 4 inches with saw-dust, old tan, cinder-ashes, or other protecting material, and hand-glasses or frames should be placed over well-established plants of the Christmas Rose in order to obtain fine clean blooms of it, with long flower-stalks, suitable for placing in glasses of water. Should severe weather set in the fruit of the Cratægus Pyracantha, and other hardy plants, now ripe will soon be spoilt by birds; the greenfinch, and other hard-billed kinds, crush the berries to get at the seeds, while the blackbird, the thrush, and the missel thrush or storm cock, swallow the fruit whole. It therefore speedily disappears unless the plants are covered for a time by an old fishing net, or means taken to frighten such depredators away. Such half-hardy plants as Tea-scented Roses, Magnolias, Ceanothuses, Pomegranates, and Myrtles, trained to walls or pillars should now receive a light thatching of straw, Fern fronds, Spruce branches, or similar protecting material; while such winter-flowering plants as the Chimonanthus and the Jasminum nudiflorum now coming into bloom, and to which it may be desirable to have free access for the purpose of gathering the flowers, should be protected by means of a moveable curtain of frigi domo.—P. Grieve, *Culford, Bury St. Edmunds.*

The Wild Garden.

To the enthusiast in hardy flowers, this (the end of November) is the dreariest time in the whole year. The wild garden is covered with dead leaves, which, blowing about with every wind, though most useful, certainly do not add to its attraction. In the wild garden, I do not either remove the leaves or the dead flower-stems; they are Nature's own protection against frost, and, as the dead leaves are naturally packed closer together whenever they are arrested by the old flower-stems, they save a great deal of trouble in protecting subjects about the hardiness of which we have some doubt. I was glad to see Mr. Baines (see p. 444) protesting against cutting the flower-stems off so closely to the ground, as is often done. If taken off 8 or 9 inches from the ground, the appearance is no worse, and the results better the following year, than if they were cut close down. The only flowers showing bloom in my garden at the present time, though perhaps all the more valuable on that account, are the following:—Schizostylis coccinea, from south Africa, reminding one of a Gladiolus, and a very handsome plant it is. It grows 2 feet in height, and bears flowers of a glowing crimson, in spikes. Being a bulbous plant, it is all the better for a little sand mixed with the loam in which it is planted, if the latter is at all heavy. In this it increases with great rapidity, and remains long in bloom; and, being perfectly hardy, should be grown a great deal more than it appears to be. The leaves are sword-shaped, and of a dark green. The yellow autumn Crocus, as it is often called (Sternbergia lutea), still enlivens part of one of the flower beds. It is a native of the Holy Land, and an Amaryllid. Its flowers almost exactly resemble the blooms of a large yellow Crocus, nestling amongst shiny, dark green, strap-shaped leaves. It grows about 6 inches in height, is worthy of a place in every garden, and has the advantage of being perfectly hardy. Some of the Tritomas are still in bloom. All the species strongly resemble one another, though in some the flame-coloured spikes are longer and brighter than in others. The latest, and perhaps finest, variety is T. Uvaria major, which is in good bloom at the present time. T. Burchelli, with its flower-stem spotted with black, has passed its best; and is not so hardy as T. Uvaria or T. U. major, but may be easily saved through the winter by the application of a few inches of dead leaves or litter. Perhaps all the varieties should have the same attention paid to them as a matter of precaution. At the same time, I only lost two plants of T. Burchelli (and none of any other variety) last winter, and they not only had no protection afforded them, but are in a large bed at the lowest part of my wild garden, and in a stiff, clayey soil. There are some varieties with variegated leaves, but they are tender. The Tritomas have a great dislike to removal, and should, therefore, be placed at first where they may long remain.—Oxon.

Indoor Fruit Department.

Vines.—In Vineries started at the beginning of last month, fire-heat must now be employed to keep the temperature at or about 65° during the day, and 60° throughout the night. In very severe weather, a fall of 3° or 4° below these figure will do no harm. On fine days, with sun, let the heat rise to 80°. Very little air can be admitted to Vineries of this description at present, but when it is necessary, the top ventilators alone should be opened, unless means exist in front to heat the cold air before it reaches the interior of the Vinery. Continue to turn over daily part of the fermenting material which rests on the inside border; and the heat derived from this source should not be allowed to decline, as it saves firing, and is of great benefit to the Vines. As soon as the young shoots are 2 inches long, tie the rods all the way up into their permanent positions. When there is more than one shoot from a spur, it will be seen which one is likely to turn out the best; and all must be rubbed off with the hand, excepting this one. Injurious crowding of the wood is the result of allowing more than one shoot to grow from each spur. On close-jointed leading young wood, the buds should be taken off when they are closer than 8 or 10 inches apart. The syringe may be freely used, especially when there is much fire-heat, as soon as the leaves appear. There is not much danger of insects doing much harm, or making great progress at present; but an arid atmosphere is not favourable to the healthy development of the tender foliage. The water used for syringing should be of the same temperature as the atmosphere of the house.

Pines.—Pines derive no benefit from being subjected to a strong artificial heat and a close atmosphere, but this can hardly be avoided in frosty weather unless coverings are placed over the glass, which can be easily done in the case of low pits and frames. Mats may be sewn together and fixed to a piece of wood, when they may be rolled over the glass at night and removed in like manner in the morning. Strips of thick cloth serve the same purpose, and it is surprising the amount of cold such coverings, with the assistance of a little fire heat, will keep out. Straw or Bracken might be used, but both are inconvenient to put off and on, and protection of this kind should never be allowed to remain on the glass during the day time.—J. Muir.

Trees and Shrubs.

Forest planting should be pushed on with all haste while the weather is favourable; wherever fencing and clearing are still required this must be finished without delay. Digging holes for the plants may be done by contract, and by this method more work will be got over than by day work. The cost is about 1s. 8d. to 2s. per 100; for ordinary-sized plants the holes should be from 12 to 15 inches square and about 9 inches deep. The best hard-wooded plants in a tolerably good soil are Oak and Ash, at about 5 yards apart, filled up with Larch as nurses; if landscape effect be desirable, a few clumps of Abies Douglasii, Picea Nordmanniana and nobilis, Wellingtonia gigantea, and Pinus Laricio are some of the best Conifers to select. Each sort should be planted in a clump by itself, at about the same distance apart as the hard-woods, and filled up with Larch at 5 feet apart. Abies Douglasii should be planted in the more sheltered position, as it is not likely to succeed so well in an exposed site as the other Conifers. For a mixed hard-wood plantation on exposed poor land Sweet Chestnut, Sycamore, and Beech should be planted, and filled up with Scotch Fir and Larch as nurses, with a few clumps of Pinus Laricio to stand permanently as a contrast amongst the hard-wooded kinds. In low-lying and naturally wet bottomed land Alder, Willows (Huntington and Bedford), Abele and Black Italian Poplars are the most profitable sorts to select; those are all fast-growing trees, and may be planted 5 feet apart without nurses. The planting of deciduous shrubs may be done now or at any time until spring, but the planting of Conifers and other ornamental evergreen trees and shrubs, if not already finished, had better stand over until late in spring. Timber and underwood should now be cut—the sooner this is done, after the fall of the leaf, the better; when timber is cut while the sap is flowing it is not nearly so durable, but in the case of Oak it is generally left until May for the sake of the bark, but to the detriment of the timber. It is even more necessary to cut underwood early, for thinning timber, where it is grown along with underwood, cannot be proceeded with until the underwood is cut; when the cutting of underwood is put off till spring, the after-growth on the stools is greatly weakened, and in some cases bleeding to death is the result. Underwood, in some districts, is sold standing, but the more satisfactory way is to sell it after it is cut by the owner's workmen. Nursery work will chiefly be lifting forest plants, but this work must not be allowed to get too far in advance of the planters, the sooner they are re-planted after lifting the better; they should never be allowed to be heeled in when tied up in bundles after they are taken to the plantation where the work is in progress, but should be spread out very thinly in a trench, and the roots securely covered over with soil, and some rough litter or Fir branches to cover the tops, for, in the case of frost and snow following, hares and rabbits can do an immense amount of injury in a single night. All land that has been cleared of a crop should be trenched at once; it will be much improved by exposure to the atmosphere before another crop be planted. The propagation of shrubs by layering and cuttings may still be effected when opportunity offers.—George Berry, *Longleat.*

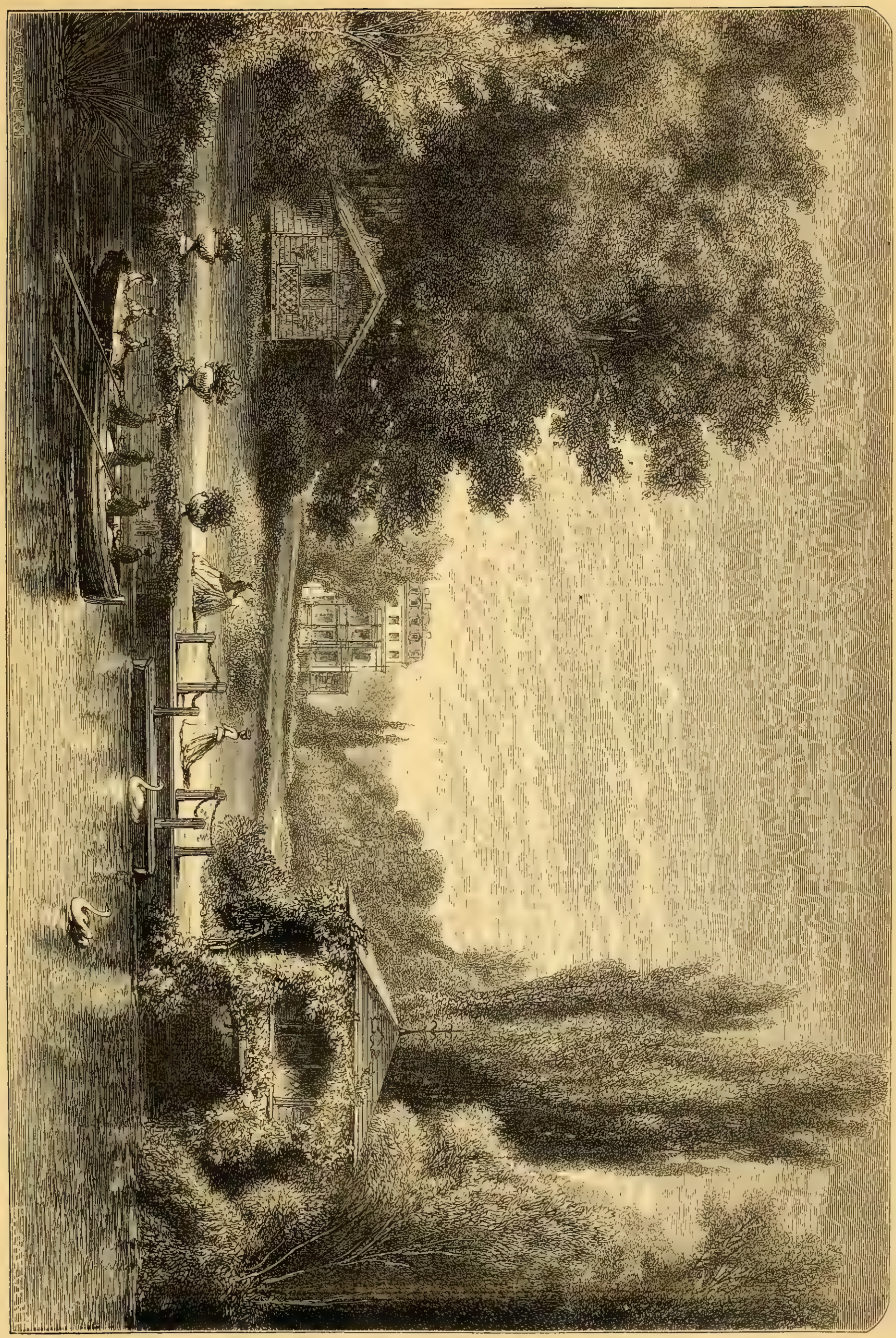
Gentians in Borders.—Of these we have G. Pneumonanthe, G. asclepiadea, and its white variety, with G. Andrewsii; and here I would ask some better authority than myself whether G. Andrewsii is really a perennial, or whether, as I fear, it is only a biennial. G. Pneumonanthe is a true native of Britain, and one of our best plants, found on some of our heaths in moist, peaty soil, and must not be omitted from the mixed border. It increases slowly—in fact, an ordinary specimen from a nursery would require three years to form a good plant, and I know of nothing which so improves by age; when strong enough to throw up several shoots it is an exceedingly attractive object. The flowers are blue inside, with vertical bands of a greenish-brown outside, and are produced in the axils of the leaves. Place it in moist peat or leaf mould, and do not disturb it, when it will grow a foot in height. Like many other of our best perennials, it requires to be thoroughly established to show its good qualities. It may, in that case, be increased by very careful division; but the safer way would undoubtedly be to buy from a nursery, and would probably be the cheapest in the end. G. asclepiadea prefers a sheltered position, either amongst low shrubs on the angle between two walls, and the slight shade afforded in that way is beneficial to it. Being herbaceous, it gives us no trouble, dying down out of harm's way during our winters. Properly grown, it will spring up to 2 feet, and produce flowers freely, nearly the whole length of the stem, of a good size, and of a deep purple-blue. The white variety is, with the exception of the colour of the flowers, almost the same, and requires similar treatment. G. cruciata is a very pretty dwarf species, not more than 6 inches in height, with dark blue flowers, produced in whorls, and being of a vigorous constitution, requires no special care in cultivation. Can any of your readers tell me where to procure G. gelida true? I have had it more than once, and have seen it in nurseries, but it has always turned out to be G. septemfida, which seems to be always sent out as G. gelida—in fact, a nurseryman told me lately that he did not think the latter was to be procured, and that when he wanted G. septemfida he always sent to Mr. ———'s establishment for G. gelida. Fortunately most of the Gentian family are of comparatively easy culture, which should induce more amateurs to grow them than is now the case, and the most prejudiced advocate for the bedding-out system cannot but be struck by their extreme brilliancy and general neatness of habit.—Oxon.

The Cedars of Lebanon.—These, once the glory of the earth, have become like a history of the past. Time was when their wide-spread branches, each forming a green plateau one above the other, flourished in all their luxuriance and beauty on Lebanon. That was the time when the King of Tyre, sent his workmen to fell Cedars for the construction of the temple of Jerusalem. Those who would view the Cedars of Lebanon now must be somewhat affected by the fewness of their number, and their decay and desolation. A little remnant is left, and the traveller gazes upon them with a feeling that has in it a touch of sadness. All through the middle ages a visit to the Cedars of Lebanon was regarded by many persons in the light of a pilgrimage. The once magnificent grove is but a speck on the mountain side. Many persons have taken it in the distance for a wood of Fir trees; but on approaching nearer, and taking a closer view, the trees resume somewhat of their ancient majesty. The space they cover is not more than half a mile; but once amidst them, the beautiful fan-like branches overhead, the exquisite green of the younger trees, and the colossal size of the older ones, fill the mind with interest and admiration. The trees are fast disappearing from the face of the earth, Each succeeding traveller finds them fewer in number than his predecessor. There are now but seven of the Cedars remaining which, by their age indicate that they had an existence in Bible days. [Will Mr. Maw, or any of your plant-hunting readers who have visited Labanon, tell me if the above extract, which is going the round of the papers, is true? One would suppose that there would be more than one locality. Is the tree distributed over neighbouring mountains?—Arbor.]

Winter Flowers.—These are, as a rule, few enough in most gardens, but careful selection will make some parts of the garden gay, even during this and next month—the most flowerless time of all the year. I have recently acquired a flower, which just comes into its highest beauty as the Michaelmas Daisies and other late Asters go out. It is the Giant Christmas Rose (Helleborus niger maximus), about two-thirds larger in all its parts than the common kind, and in flower two months or six weeks earlier. It appears as yet to be extremely scarce, but it is worth looking after and securing, and when once you have it, it is very easily increased, as you have only to cut the thick rhizome into as many pieces as it has eyes or knots; plant these in a light sandy and peaty compost, and every piece will form a plant. Chrysanthemums are also in great beauty just now, and to them a warm south border should be devoted in every garden. No flower has more delightfully broken and pure tints than this, but it is too often half-starved. Remember that it should be treated as generously as the Rose, and that it should, in addition, be lifted every spring, and the border renewed with fresh loam. Schizostylis coccinea is a valuable plant in warm situations, but flowers too late to be of much use in later climates. This also should be lifted and divided every spring, or at least every alternate spring, else it will not produce flowering stems. The intense scarlet of its satiny sepals is very effective at this season. Were the three plants I have named excluded from our list, we should find it very hard to find anything in the outdoor garden to cheer us, except the battered remains of departed glories. These keep up a succession of bloom, till the common Christmas Roses, Snowdrops, and Aconites come in.—Salmoniceps.

ST. GRATIEN.

St. Gratien, in the Seine-et-Oise, belonging to the Princesse Mathilde, is one of the prettiest of the country-house gardens in that château-dotted country. In this, as in many like gardens, while there is something to admire as regards the planting of bold and varied types of tree and shrub vegetation, there is a good deal which somewhat offends our notions as regards the position and exposure of such structures as summer-houses, boat-houses, aviaries, &c. In the pleasure garden which most fully satisfies, structures of this kind are not placed where not really wanted, and are never placed in conspicuous positions. When this rule is not observed it requires all the grace and liberal growth of the Virginian Creeper or Wistaria to make matters even tolerable. The kiosque, usually placed in a conspicuous position, is the most hateful feature of French gardens. The like of it will, we trust, never be introduced into quiet English gardens. In all our great public gardens and parks, this is a most essential point to observe. The exposure of lodges and superintendents' houses, and their appurtenances, may destroy scenes that otherwise would be without blemish. For example, the building of the new and stiff Palm-house at Glasnevin, in the most central part of the garden, and away from the old and beautiful range built by Turner, is a great blemish to that fair garden. So again, the dotting about of the several houses and groups of houses at Kew, is, for various reasons a worse plan than throwing them into one stately group would have been. The main artistic objection, however, is that many widely-separated structures, necessitate numerous walks and minor groupings and dottings of vegetation which tend to interfere with anything like a sufficient breadth or repose being obtained.



THE GARDENS OF ST. GRATIEN.

THE INDOOR GARDEN.

CONSERVATORY SOFT-WOODED PLANTS FOR WINTER.

The three last months of the year is, without doubt, the period when it is found most difficult to secure a brilliant show of flowering plants or the conservatory. Camellias are not yet in full bloom, and it is too late or too damp for Zonal Pelargoniums, Achimenes, stove plants, and the mass of summer-blooming plants. Forced flowers are scarce until after Christmas. True, the Chrysanthemum is in its glory in November, but many people look but coldly on the Chrysanthemum as a conservatory plant when it is in full blaze in the cottage garden. Still we think, with a special eye to these three months, it will not be difficult to have a very varied and brilliant display, and with even a smaller amount of labour than would be required for any other three months of the year. There are various plants which flower naturally in the late autumn and winter months; and, by a judicious selection of these, and a little simple management, which we shall describe, the autumn decoration of the conservatory will not be found difficult of accomplishment. We take it for granted that the Chrysanthemum will be a staple flower for November, Chinese Primulas and Roman Hyacinths plentiful, the first set of Poinsettias struck in July are in full bloom, winter Heaths, and Epacrises at their best, and a few early Cinerarias are coming in; so we shall turn to those plants of a specially autumn character, which can be grown out of doors. Eupatorium ageratoides is a good companion plant to the Chrysanthemum, an excellent white flower for decoration and cutting, and nearly hardy. Cuttings taken in February and, when struck, potted on until they fill 4-inch pots with roots, should be planted out about the middle of May in a well-prepared border of rich soil, to grow on until October, when they should be lifted, most of the soil shaken from their roots, and potted into as small pots as possible. They must be pinched throughout the summer, to keep them dwarf and stocky up to the first of August, after which they must be allowed to show their heads of bloom for October, as this plant comes very slowly into flower; plants to flower at Christmas may be pinched a month later. Plants which have flowered the previous year, if cut back a little and planted out at the same time, make grand bushes the second year, and can be sticked out into fine specimens for vases. Plumbago capensis is another plant which can be managed under the same treatment. Plants the first year from cuttings do not, however, become very large; but by pinching they become fine bushy little specimens for small pots, and yield an abundance of showy blue flowers. Plants of the second year or older make handsome specimens for the conservatory, if attention is given to sticking and pinching during summer. For this work, no plant is more showy or satisfactory than Salvia splendens; huge specimens can be grown the first year from cuttings by propagating early and planting out in May in well-prepared soil. Useful little plants can be grown from cuttings struck in May and planted out in the end of June, pinching them into shape weekly as they grow; they will early require some sticks to support them against strong winds, as they are very easily broken.

Abutilon Thompsoni should be raised from cuttings struck in spring and grown on until they fill 4-inch pots with roots before planting out, pinching them once when 18 inches high. Neat little plants for conservatory and table decoration may thus be obtained. They need not be lifted before the middle of October, as they do not suffer from a few degrees of frost. The colouring of the foliage is far superior grown in this way to those grown in pots under glass. The narrow-leaved Abutilon marmoratum variegatum grown in this way makes neat edging plants, and is hardier than the last; plants with us stood out of doors all last winter, and pushed strong growth from the roots in the spring. Bouvardias planted out on a warm border at bedding-out time, and well supplied with water throughout the summer, the blooms being pinched out as they appear, potting them up the third week in September, and placing them in a moist heat at the end of October, bloom profusely in November and throughout the winter. Vreelandii and Hogarthii are two of the very best and strongest growers. Begonia Weltoniensis is exceedingly well suited for being thus planted out and lifted, the plants lasting much longer, and looking more robust than those which have been confined all the season in pots; it requires a rich soil, plenty of water, and partial shade, to grow it well. Fuchsias of the previous year, out of 6-inch pots, cut over in spring, and planted out in May, and attended to with water throughout the summer, pinching them as they grow to make them bushy and shapely up to the end of August, will be in excellent condition to lift the first week in October, when much of the soil can be shaken away from them, as they do not suffer in the least at this season; these make fine healthy flowering plants, and last much longer than plants grown in pots. Calla æthiopica is also best grown in this way. This plant is quite hardy when plunged overhead in water in winter. It may be planted out early in spring, either as large plants or divided, in good prepared soil. It requires abundance of water, and if grown liberally in this way, it will flower in November without any forcing whatever, and much more vigorously than if confined in pots. It is not at all necessary to lift a body of soil with the roots; but they must be carefully saved and well supplied with water after potting. Libonia floribunda should also be managed in a similar manner; young plants which have well filled 4-inch pots with roots should be planted out in May, in a piece of rich soil, and well watered in summer. This plant requires no pinching or staking; by the first week in October it will be smothered with its tiny flower buds, which will soon be brought into flower, if placed near the glass in an early Vinery just started, or on a shelf in the stove or forcing-house.

The old and much-neglected Cassia corymbosa is a grand autumn-flowering plant—or, indeed, summer and autumn—and grows well if planted out; but to have bushy autumn-flowering plants, it requires to be pinched throughout the summer, to keep it dwarf; otherwise it will rush into a few strong sappy growths like that of an Erythrina. One plant here has made several shoots 9 feet long, this summer flowering perpetually, and continues to do so in the open air. Salvia gesneræfolia is a brilliant plant for winter-blooming, coming in after Salvia splendens is over. This plant may be managed in the same way as its relative, but has a tendency to grow stronger, and does not submit so well to lifting. We, therefore, prefer to plunge it out in the pots of a flowering size, allowing it to root through, and pinching it as required. This plant requires a good deal of room to do it justice. A large specimen, 9 feet high and 4 feet through, in a large pot in the conservatory, is a grand object in winter. Schizostylis coccinea, a hardy plant in the south, should be planted out in small pieces in spring; this lifted in September, gives a succession of its Gladiolus-like flowers up to Christmas. Although the plant is hardy, frost injures its flowers. It dislikes a close atmosphere, and should consequently have an airy shelf in the conservatory. It is a mistake to lift and pot all these plants too soon, especially if the autumn be dry and warm. The second week in October is time enough here on the south coast. When the weather has become moist and cool, the demand on the foliage is reduced to a minimum and if they are placed in a sheltered shady place, out of doors, for some days after potting, flagging of the foliage is rare. Never house them immediately after potting, or much of the foliage will be sacrificed. An occasional syringing, if the weather be drying, will benefit them until the roots begin to grow afresh; and when quite recovered, then they may be introduced to the shelter of glass. By careful lifting and potting, and after management, so that they may not be exhausted by dryness, they have all their energy spared to enable them to go on flowering their natural term, and more satisfactorily than if grown in pots. More plants might be added to this list which can be grown in the same way for the same purpose, but with those indicated there need be no lack of flowers during the three last months of the year. W. D. C.

THE LILY OF THE VALLEY.

This grows abundantly in a wild state in some parts of England, and here and there also in Scotland, and, when seen in large patches, its bright green leaves and delicate sprays of snow-white flowers form one of the most beautiful of the undergrowths which adorn our woodlands. It succeeds best in shady dells, where the roots are seldom exposed to excessive drought or heat, and also near the margins of streams. In gardens it is rarely cultivated extensively as an outdoor flower, not even in pleasure grounds, where one would expect to see it in a semi-wild state. The bare parts, so often seen under wide-spreading trees, where Grass and other vegetation does not succeed, are just the spots in which it thrives best. When planted about the roots of trees, where the soil is often poor, a thin layer of thoroughly rotten manure spread over the crowns in autumn greatly assists the plants in spring. It is, however, as a forced flower early in the year, that it is most valued. For button-holes, bouquets, and all kinds of floral decoration the flowers of this Lily, are, as is well known, extremely suitable, and when produced in perfection in pots, nothing looks better or sweeter in the conservatory or greenhouse. Roots of it are imported in large quantities, and these are generally better for forcing than such as can be lifted at home. They may be potted from the beginning of September until the end of December, to flower from January till May, when they may be had in bloom in the open air. The soil used for potting should consist of sandy loam and leaf mould or well rotted manure. The pots should be sufficiently large to contain the "clump" without breaking any of the roots or parting the crowns. Such as are bought generally fit a 6-inch pot. The drainage should be ample, and the soil should be pressed firmly down, leaving the crowns barely covered. They should then be watered and allowed to stand on the potting bench for a couple of days before being covered up, which they afterwards should be, in the same manner as Hyacinths and Tulips. The earlier the roots are potted, and the longer they are kept in the dark, the better do they succeed when placed in their forcing quarters. Potfuls of roots buried in plunging material about the end of September may be brought to light and placed in a heat of 65° or 70° by the end of November, when, if all goes well, they will bloom early in January. During the forcing period they should be well supplied with water and occasionally syringed. Before the flowers open they should be kept near the glass, and when the blossoms are fully expanded they may be removed to a cool-house. This Lily never does well if forced into flower earlier than the new year. It may be had in bloom by Christmas, but the foliage does not start readily, and the flowers are not so perfect as they are in spring. Where cut flowers only are wanted, the roots need not be potted, but merely placed in boxes, such as are used for cuttings, and treated like those in pots. There are various ways of disposing of the roots after they have done flowering: sometimes they are planted out and, after being allowed to remain in that condition for two or three years, are again lifted and forced. When thus planted out if carefully attended to, with water in summer, fairly good roots for forcing may be obtained in this way, but the surest way of getting well-developed, thoroughly-ripened crowns is to keep them constantly in pots. The finest Lilies of the Valley I have ever seen were in 9-inch pots, in which they had remained for more than a dozen years. The roots were pot-bound, and the crowns when the leaves were shed bristled over the edges of the pots like one's little finger, and, although they had been forced for years in succession, the flowers were, year after year, more profuse than on younger stems subjected to the same treatment. When kept in pots Lilies of the Valley must never be permitted to suffer from want of water, and when the pots are full of matted roots they should even be placed in saucers of water in hot weather.

J. Muir.

RHYNCHOSPERMUM JASMINOIDES FOR WINTER FLOWERING.

This is one of the most accommodating of climbing plants. It is quite at home, both in the stove and in the greenhouse, and may be planted out in the conservatory border, either against a wall or pillar, and it might even be tried in the open air, against a warm south wall. My object, however, in directing attention to it now, is to recommend it for winter flowering. When grown in pots, and trained to conical or globe-shaped wire trellises, where plants of it are plentiful, it may be had in flower from Christmas to midsummer, with far less trouble than is sometimes given to less deserving subjects. In fibry peat, containing a deal of turfy loam and leaf mould, and a sprinkling of sand, it may be grown to perfection. When required for early flowering, it is essential that the wood should be made early in a warm house or pit, and that the plants should be afterwards moved into a cool house to ripen it, and ultimately, early in August, to the open air for a month or six weeks, in order to finish its maturation. After growth has ceased, less water will be required, but nothing approaching what is termed drying off should be attempted, or the roots will suffer. Towards the middle or end of September the plants should be placed in a cool house, and about the end of October a portion of the stock may be placed in the forcing-pit or house, when it may easily be had in flower by Christmas, and, when hardened off a little, may be taken to the conservatory, where, in the drier atmosphere, the pure white sweet-scented flowers will last a long time in perfection. This plant is easily propagated. Small side shoots or points of young shoots, just beginning to get a little firm, will strike readily in peat and sand under bell-glasses, in a bottom-heat of 75° or 80°.

E. Hobday.

Ramsey Abbey.

CULTURE OF DAPHNE INDICA RUBRA.

This is said to be getting scarce, a circumstance to be regretted; for, of all odoriferous plants, it is one of the best, vieing, in that respect, even with the Rose itself. It is, moreover, a plant of comparatively easy culture, requiring little or no forcing to have it in bloom during the short days of winter, when fragrant flowers are scarce. Though of robust constitution, this variety of Daphne is yet of slow growth, and, therefore, it is a rule with some cultivators to encourage the plants to make the growth in one season. In order to effect this the plants must, if necessary, be re-potted in February; they should then be placed in a moist atmosphere, the temperature of which is about 55°, and watered as the roots fill the new soil. In about ten weeks the first growth will be made, when the points of the young shoots may be pinched out, and the plants placed in a drier and more airy situation. As soon as the wood appears well ripened, which will be in four or five weeks time, they may again be planted in a warm moist atmosphere (without re-potting), and be kept in it until they have finished their growth. When this has been accomplished they should be gradually inured to bear a drier atmosphere and less heat, in order that the wood may be well ripened and the flower buds set. To secure an early crop of flowers, as well as a succession, some of the plants must be placed in gentle heat. This variety of Daphne is usually increased by grafting it on some hardy kind, but experience has proved that it grows vigorously on its own roots, and it is also very largely raised from cuttings made of pieces of the half ripe young wood put in sandy soil and covered with a hand-light or bell-glass. Thus treated, and placed in a cold frame, they strike root in a short time. I have seen cuttings taken off in summer and inserted inside the rim of a pot in which another plant was growing, strike root readily. It is always best to get the cuttings taken off as early in the season as possible, in order that they may get well established in small pots before winter. Strong cuttings may be put into large 60 or small 48-sized pots; and, when potted, they should be placed for a time in a rather close and moist frame to assist them in getting established. During the winter the plants should be placed in a cool greenhouse from which frost is excluded, and they should also be kept sufficiently moist to assist growth. This kind of Daphne flowers best when the pots are pretty well filled with roots, and even when somewhat pot-bound. When a shift is given, it should be a slight one, as it is a plant that is impatient of over-potting and of stagnant moisture at the roots. As soon as growth is completed and flower buds formed, the plants may be removed to a sheltered situation out-of-doors, or, if later in the season, to the greenhouse. All that can properly be done at this season to secure a succession of bloom will be to place the most forward plants in the warmest parts of the house, and leave the others to bloom later. When the plants have done flowering they should be given a cool airy place in the greenhouse, and the strongest shoots should be shortened back so as to secure a compact bushy habit of growth. They should be allowed to remain in this situation for about a month or until the buds become plump.

To provide for a long succession of bloom after February, the plants should be introduced at intervals to a growing temperature, some being left to make their growth in the greenhouse. Those inclined to start about the end of February will flower at the end of September or early in October, and with a little care in keeping the most forward plants in the closest part of the greenhouse, there will be no difficulty in keeping up a supply of flower till May. The peculiarly agreeable fragrance of this Daphne renders it, at any season, a special favourite; but, if a few plants in bloom can be placed in the conservatory in October, when the house is kept comparatively close, the atmosphere will be loaded with fragrance. A soil composed of two parts of rich friable turfy loam and one part of turfy peat, freely mixed with silver sand, and crocks broken in rather small pieces and fully intermixed with the sand, is one to be recommended. In potting, make the fresh soil rather firm about the ball, and be especially careful to ensure efficient drainage, as the plants never do well with stagnant moisture at the roots. The white variety does not succeed well in pots, on account of its susceptibility to red spider and canker; but when planted out in the border of a greenhouse or conservatory, for the purpose of covering back walls, trellis, or pillars, it is invaluable, producing an abundance of pure white fragrant flowers throughout the summer months. R. Dean.

Offsets of the Pinguicula.—Plants of this are now in a state of rest, the foliage has died down, leaving at its base a bunch of little bud-like plants, each of which, if separated from the bunch, will be found surrounded by a number of minute offsets; all of these will grow if fairly treated. I consider the present to be the best time for propagating and dividing the plants, and re-potting the entire stock; the large ones might be potted up separately into small sixties if so desired; but to get a good display out of this small plant, it is better to prick them all out into pans, just fixing them on to the surface of the soil by a gentle pressure. The soil should be fine and sandy, and if the small offsets are strewn over the surface most of them will take root and grow into good plants during the next summer.—A. D.

Plumbago rosea in Winter.—This fine old plant is not so well cultivated as it deserves to be, as it is one of the finest plants we have for furnishing our stoves and intermediate houses with flowers at this dull season of the year. Its long branching racemes keep on flowering for weeks together; therefore, when cut, a great sacrifice is made, as the score of flowers that exist at the points of the racemes do not expand, and those that are open soon droop and wither; nevertheless, it is well worthy a place in all collections of stove plants. I found a quantity of it here when I came last January, from which I have propagated sufficient plants to cover the back walls of three Melon-houses. Of these the earliest are now at their best, and cover a wall 25 feet long with hundreds of lovely long racemes of rosy flowers, arching out gracefully from the wall, and producing a charming effect. Few, I imagine, have seen such a splendid sight produced by any kind of plant at this time of the year, and the only regret, in reference to the plant, is that it will not stand cool treatment.—James Ollerhead, *Wimbledon House.*

The Six Best Pompone Chrysanthemums.—As but few kinds of Pompone Chrysanthemums are really required for the largest garden it behoves the cultivator to grow the best and most distinct only. For a small conservatory half-a-dozen varieties will suffice; and, considering that there are about 150 varieties in cultivation, it is no easy task to select the best six. Growers mostly run upon the different coloured forms of Cedo Nulli, but they are by no means the best; for, although they possess a good habit, and bloom profusely, they lack effectiveness because of the comparative dullness of the flowers. It is generally said that varieties grown by everyone must be good, but it cannot be said that Cedo Nulli and several others which enjoy a similar share of popularity are the best. Opinions will differ amongst those who do not consider the variety here referred to, and its sports, the only Chrysanthemums worth growing as to the best six, but I have no hesitation in voting for the undermentioned, for they are all perfectly distinct and of the finest quality. First we have Bob, which bears flowers that are really bright crimson, and as unlike the majority of the so-called crimson Pompones as they well can be. Madame Eugène Domage is very beautiful, the flowers of medium size, double and pure white; it is very early and is, at its best, before Mdlle. Marthé. The last-mentioned is unquestionably the best of the white varieties flowering at mid-season; the plant is dwarf, the habit good, and the flowers large and of the finest form. Model of Perfection has flowers perfect in form, and the petals are margined with white on a delicate rose ground. Président Decaisne has large flowers of the richest rose colour, and stands at the head of all the varieties of a similar colour. St. Michael is the best of all the yellow Pompones and cannot be too strongly recommended; the colour is very rich and deep, and, in the form of small decorative plants or of exhibition specimens, it is wonderfully rich and telling, and in its way is quite unsurpassed. If a better six can be selected I, for one, shall be pleased to hear of them.—An Old Grower, in "Gardeners' Magazine."

Encaustic Tile-floorings for Glass-houses.—The main objection to these (see p. 443) seems to be in their colours, but these are so numerous and various that they may be obtained to suit all tastes. Fine floors and beautiful plants and flowers are not incompatible; are we incapable of appreciating cut flowers or plants because they are in handsomely-furnished rooms or floral decorations because they are on dinner-tables brilliantly laid out? But their colours are not the chief recommendation belonging to encaustic tiles. Their durability surpasses that of most other materials which can be used for such purposes, and nothing unsightly will grow on them, which is not the case with Yorkshire or any other kind of stone.—J. Muir.

Manettia micans.—This plant ought to find a place in every plant stove; it is most elegant in habit, being fully equal in that respect to the Creeping Myrtle, or Boston Vine; and, like that plant, bearing bright green, smooth, ovate leaves, on slender wire-like stems. The flowers are produced from the axils of the young growth, and are bright scarlet in colour, tubular, with four reflexed lobes. The four purple anthers and a bi-lobed green-tipped style protrude from the mouth of the extinguisher-shaped flowers, and add to their beauty. It can either be planted out, and trained up a trellis, or grown in pots; and is, indeed, a distinct and most desirable plant.—B.

Beaucarneas Rapidly Grown.—It is a commonly entertained opinion that Beaucarneas—plants which are specially remarkable for the great swollen or napiform base of their stems—are extremely slow-growing, and doubtless they are so under the restrictive treatment they usually receive, which is almost that of succulent plants. We are indebted to Mr. W. B. Kellock, of Stamford Hill, for exploding this false notion. With his choice collection of Agaves and other succulent plants, he cultivates most of the Beaucarneas, and observation and experiment have induced him to reverse the usual treatment given to these plants. The result is a much more vigorous as well as much more rapid growth. The plants are deluged with water, often twice a day, during summer, and in the dull season, when comparatively at rest, they are never allowed to become dry. The beneficial effect of this treatment is abundantly shown in a fine example, which a year or two since came almost leafless into Mr. Kellock's hands, but which is now freely clothed with vigorous healthy foliage. It is also apparent in the rapid growth made by young plants.—"Florist."

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Old Plants of Primula sinensis.—I can fully endorse all that has been stated by "D." (see p. 409) respecting the merits of old plants of this Primula. I find that strong healthy plants, selected from the previous year's stock, and treated liberally through the summer, produce grand heads of bloom by the end of November. They are rather more liable to damp off at the collar than seedlings, but this can be prevented by keeping them in an equable temperature, and using the watering-pot carefully.—W. M. Stickland, *Hopwood Hall.*

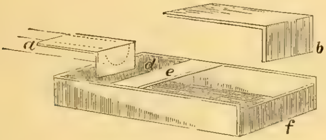
Is Boiler Water Injurious to Plants?—In answer to this question, I may state that for several years I have used boiler-water for raising the temperature of water for syringing and watering plants, both hard and soft-wooded, and I have never had cause to discontinue the practice. I occasionally run off the water and re-fill with clean—consequently my boiler-water is quite clear and almost free from smell. I would advise your correspondent to do the same, and he need not be afraid of injuring his plants.—Thomas Smith, *Henbury Hill, Bristol.*

Propagation of Luculia gratissima.—It may not be generally known that by inserting cuttings of this plant in nothing but sand they will root freely. When potted off in single pots they ought to be placed either in a close frame or under hand-lights; for a time they will make but little progress, but, when once established, they should have more air, and they should be kept in a north aspect, when, if all goes on satisfactory, they will make plants 2 feet high the first year. Good yellow loam, leaf mould, and sand is the compost I recommend for growing them in.—A. Hossack, *Ragley.*

Bignonia venusta at Welbeck.—I have flowered this grand old climbing plant in a warm conservatory now for several years, and few stove climbers are so showy during the summer months. It is a plant that requires, when planted out, some time to show its great clusters of trumpet-shaped flowers of the deepest crimson. The plant here now measures 13 inches in circumference of stem at the ground, and covers a large portion of the roof of the conservatory, a Granadilla Passion-flower plant covering the other portion. Both are planted out in a border of a light loamy soil mixed with some leaf mould.—William Tillery.

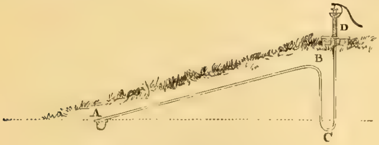
APPLE-SEED WASHER.

Nurserymen and others are often at a loss to know what is the best mode of separating Apple seeds from the pulp. By adopting the following method, two men will wash half a bushel of seed or more in an hour:—Make a box 5 feet wide, 8 or 9 feet long, and 10 inches deep; leave the lower end *f*, 1 inch lower than the sides, for the water to flow over. Place this box in the bed of a brook or stream, on crossbars or scantling, with a dam above to collect the water into a trough, carrying the water into the box, and projecting 6 inches over it. This trough should be made of boards 12 inches wide, nailed together, and the stream should be large enough to nearly fill it when flowing gently. To prevent the water from dashing into the box too furiously, two boards are first nailed together as shown at *b*, one board being 18 inches by 2 feet, and the other 18 inches by 1 foot. The longer board is placed on the top of the spout, and the shorter at right angles across the lower end of the spout. This serves to throw the water perpendicularly downwards into the box, and at the same time serves to spread it out into a thin sheet. By moving this board up or down the spout, the quantity of water pouring into the box may be easily controlled. One man stands on the board *e*, which extends across the box, and the other carries and deposits the pulp (well pounded to pieces) into the box at *d*, one or two bushels at a time. The man on the box then stirs the pulp rapidly with a four-tined fork, and throws out the refuse. The pulp floats over the lower end (which is an inch lower than the sides) and the seeds fall to the bottom. A few back strokes from the lower end of the box assist in the separation of the remaining pulp. In washing a quantity that contains a bushel of seed, it is usual to wash it two or three times, by using a scoop-shovel. Afterwards, the last cleaning process is given to it by placing the whole in a box, and then passing a four-tined fork through it a few times. A little experience will enable any one to judge accurately of the proper quantity of water to turn on, so as to make rapid work, and not carry the seed over the box. The pulp should be placed on a board platform beside the box, and then plenty of water should be thrown upon it, until it is thoroughly soaked. This will render it easily beaten to pieces with a hoe. It should never be allowed to remain over twenty-four hours, as it soon ferments and spoils the seed.



Apple-seed Washer.

Pumping Water up a Slope.—Can I bring water 6 or 8 rods by a suction pump, if the pump stands on ground 6 feet above the surface of the water in a well or spring? Would it be better and cheaper than to build a cistern?—B. [Lay the pipe in the direction A B C D, or in any other direction touching A C D. C being lower than A, water will not flow back to it. Lay below frost. A, spring; D, pump; dotted line, level.—"Rural Affairs."]



Pumping Water up a Slope.

THE KITCHEN GARDEN.

PEA CULTURE IN SMALL GARDENS.

Somehow or other, in many small gardens Peas have a starved look and lack the tenderness, greenness, and sweetness that characterise them in those of a larger size. One general cause of failure is the soil, and the second is the want of skill in cultivation. The chief point is a good soil, rich and deep, say 30 or 36 inches. The Pea pushes its roots, strong and fleshy, deep into the soil in search of food, and therefore ground intended for Peas should be richly manured, and either deeply dug or trenched. Peas are a somewhat exhausting crop; but to get the most produce of the highest quality, so much manure should be applied that it cannot be all used up. Cropping thus becomes a feeding not an exhausting process, and the impoverishment of the ground is rendered impossible. No doubt the weakest point in small gardens is the smallness and worthlessness of the manure heap, hence the leanness and toughness of their Peas and other vegetables. A good plan, therefore, is to begin the gardening of the year by buying and at once digging in the requisite amount of manure. Fortunately, too, where solid manure may be beyond reach. liquid slops or manurial water are nearly always at hand. The Pea delights in having its food diluted with water, and there are few easier ways—none more profitable—of getting rid of liquid nuisances than giving them to a few strong rows of green Peas. They will consume almost any amount of such food and speedily give back in return an amazing quantity of the very best and sweetest of produce. Next to a rich and deep soil the Pea delights in a dry and somewhat firm one. Though greedy of moisture, when in full growth, it ceases to thrive the moment its roots touch stagnant water; hence the importance of well-drained and autumn-cultivated land for the successful culture of green Peas. The sooner all vacant ground is dug up in autumn the better, in order that rain, wind, and frost may pulverise and enrich it. These are amongst the most potent of cultivators.

Next to preparing the soil, I would place a good selection. Notwithstanding the many fine kinds now in cultivation, nothing is more common than to find Peas of indifferent quality sown even in gardens where better things might have been expected. If I were asked what is the best Pea, I should answer, Ne Plus Ultra; which is the second best, Ne Plus Ultra; and which is the third best, still I should answer Ne Plus Ultra. After this statement it may seem useless to give a short list of the best varieties. But as amateurs especially must have variety, and an earlier Pea than Ne Plus Ultra is essential, I will name the following as among the very best Peas in cultivation:—First crop—Kentish Invicta, Blue Peter, Carter's First Crop, William the First, and Laxton's No. 1; the last a very early blue wrinkled Marrow Pea. Second or main crop—Ne Plus Ultra, Dwarf Ne Plus Ultra, Laxton's Alpha, Auvergne, Veitch's Perfection, Nutting's No. 1, Williams's Emperor of the Marrows, Laxton's Supplanter, Champion of England, and Burbridge's Eclipse. For late cropping—Ne Plus Ultra, Veitch's Perfection, Moss Podded, M'Lean's Best of All, James's Prolific Marrow, British Queen, Victoria Marrow, Knight's Tall and Dwarf Green Marrows, Laxton's Omega, Yorkshire Hero, Champion of Scotland, and, for the last sowings in August, First and Best and Laxton's No. 1 and Alpha. Another point is the time of sowing—in general terms—from November to to August. November for the first crop, and August with the view of a last picking, up to December, should the late autumn and early winter months prove mild and open. But the main crops are generally sown in February, March, and April, with smaller sowings in May, June, and July, to continue the succession without intermission. This prolongation of the season of green Peas is another point in which most small gardeners fail. The want of success arises chiefly from sowing too many of one sort at once, from starving the crops, or from sowing too thickly. Suppose there is only room for three rows of Peas, the middle row might be sown with Ne Plus Ultra, flanked on either side with Fairbeard's Surprise, and edged with the early dwarf Beck's Gem. These by means of liberal treatment might be made to bear throughout the greater part of the season. Again it is easy to avoid sowing too many Peas at the same time. A good practical rule is to sow another row or two as soon as the last sown are about 2 inches high. In order to gather Peas in June those sown in November must be early varieties, and they should also be sown in warm and sheltered places; neither can the ground be too mellow and fine, and hardly too dry at that season of the year. On cold, damp ground a good plan to adopt with this crop is to form ridges, facing the south, of considerable height and to sow almost half-way up the southern slope of the ridge. A warm and dry bed is thus ensured for the Peas, and the back of the ridge turns aside cutting north winds. Of course the foot of a south or west wall is a still better position, but this cannot always be had and a ridge can, as anyone can make it with a hoe or spade. These Peas necessarily lie a long while in the ground and are therefore liable to be attacked and eaten by vermin. There are two general modes of protecting them from such ravages. The one is placing over the Peas a layer of chopped Furze—the finer it is chopped the more effective; the other is to make the Peas distasteful, by first wetting them and then rolling them in red lead till all are fairly coated with that substance—vermin shun the lead and the Peas are preserved. Again birds are sure to be on the lookout for the sweet tops as soon as they break through the ground, which should therefore be thickly dusted with soot. The enemies and dangers of November-sown Peas are, however, so many that most cultivators prefer to sow their first crop under glass in January, in pots, pans, or boxes, or on the floor of an orchard house, pit, or frame, to be planted out in the open ground when fairly up in February or March. The slight disturbance incident to planting out rather forwards the blossoming. To avoid, however, checking them too much it is common to sow the seeds in the centre of pieces of turf about 3 or 4 inches deep. A small drill or mark is made along the middle of the turf, the seeds are deposited and covered with a little leaf mould, rotten manure, or soil. The young plants root freely into the turf and the latter are transferred bodily into the open air, and inserted so deeply as merely to leave the heads of the Peas above ground. This is a capital plan and starts them in the open air with a fine reserve of vigorous and healthy roots. Whether this method of planting out in the spring, or the other of sowing in November is adopted, the first crops require careful nurture and prompt shelter. The most obvious means of providing both is by frequent relays of warm, mellow soil to the stems and early staking. It is astonishing how much shelter a fairly thick row of Pea-sticks furnishes to Peas growing under them. These should also be supplemented, in the case of the earliest crops, by the addition of a dwarf staking with Spruce boughs along the base of the taller stakes. Some also use a portable wall of boards, glass, reeds, or mats to protect the early Peas; but in ordinary seasons the shelter afforded by earth and stakes will prove sufficient to carry them through. As to successional sowings, once in three weeks from the middle of February to the end of August will suffice to keep up a regular succession of green Peas. As to the distance from row to row, it should never be less than the height of the Peas grown, or they will prove too close. From 4 to 7 feet is a common distance, but the best and most profitable way of cultivating Peas is to grow them in single lines as breaks or divisions for ,and among, other crops. Peas thus grown are extraordinarily productive, and, with extra supplies of manure-water, will continue in bearing a long time.

Peas, with the exception of very dwarf varieties, are generally staked in gardens. Various modes of supporting them have been suggested, such as wires crossed near the top, light wire hurdles or Pea guards, cords, and similar appliances; but the almost universal practice is to use ordinary stakes roughly dressed and pointed with nearly all the twigs left on them. These are put in on each side of the Peas, leaving a space of 6 inches or more between them. It is important that the stakes should be high enough for the sort grown; that they should be sufficiently strong to carry the weight of the plants; firmly enough inserted in the ground as to be wind proof; and invariably so placed that the stake on one side should alternate with the opening on the other, thus providing the Peas with the shelter and support of a continuous wall of wooden spray. Before staking it is common to draw from 3 to 6 inches of earth up around the stems of the Peas. This may be advisable for a protection for the earlier crops against cold, but it is of little use to the main and late crops, as Peas do not root freely up their stems, and it is often injurious by throwing off the water from where it is most wanted—around the roots. For later crops it is better, in fact, to sow the Peas in a trench in order to facilitate the retention of all available water. Neither is it absolutely necessary to stake Peas. Indeed, the market gardeners around London seldom do so. They sow at distances of rather less than the height of the sort, and allow the haulm to cover the ground. This plan is suitable for market purposes, where a crop is cleared at a few gatherings. To secure continuous bearing it is needful to gather young and frequently, for one Pea-pod left to ripen weakens the plant more than a dozen gathered young. Hence, those who have small gardens cannot afford to save their own seed Peas. By looking the bearing crops over two or three times a week, and keeping them clean and well supplied with manure-water, it is surprising how long a few rows of Peas on good ground will continue bearing. To hasten maturity in spring and in autumn the plants are occasionally beheaded a leaf or two in advance of the first pods formed. This is said to throw the whole energy of the plant into the pods left. It, however, probably does quite as much harm as good, for the growing tops induce larger supplies from the roots to the pods, which are forthwith arrested. There is, however, one advantage in thus beheading Peas—the tops rubbed through a sieve are almost equal to green Peas themselves, in the flavouring and colouring of soups. D. T. Fish.

DEEP CULTIVATION.

The wet weather which we have experienced throughout the season, has taxed to the fullest extent the efficiency of the different methods of cultivation adopted, and has warned us of the necessity that exists for more deeply digging, manuring, and rendering the soil pervious to the free admission of air, moisture, and warmth, which are so essential to vigorous plant development, and which tend so much to increase the productive capability of the soil. It has been observed that upon plastic argillicous soils, as well as upon unbroken impervious sub-soils—pans which are inefficiently drained, "with mere surface tillage"—water has lain in pools upon the surface. It is, therefore, evident, that whatever may be the difference of opinion as to the depth we ought to cultivate, a thorough system of drainage is necessary, and deep underdraining should always precede deep cultivation. As drainage is a matter involving considerable outlay, it behoves those about to undertake it to consider well, in the first place, the formation and nature of the sub-soil, as it is impossible to fix upon any one depth as suited to all soils and circumstances. For example; in strong impervious clays this bottom water is seldom found. The water is from the surface, and it will at once be apparent that the quickest means of providing for its escape will be by means of drains, varying according to the character of the sub-soil, from about 3 feet in depth, and moderately close together—say, on an average 12 feet apart. These will be found far more efficacious than a rigid adherence to a system of drains 4 feet in depth, or, in fact, to any one specified depth irrespective of the underlying stratum of sub-soil, and its condition as to moisture. In the case of land with a thoroughly dry bottom, which retains water until it escapes by evaporation, I should consider a moderate depth of drainage to be the most efficient. On the other hand, wet, pervious sub-soils, which are spongy and surcharged with spring water, must be drained to a greater depth, say from 4 to 6 feet. In land with a cold sub-soil saturated with wet the roots of plants are prevented from entering it to any depth, as they perish. By tapping the water the temperature of the soil is increased and the roots of plants sink much deeper. Again, we have soils that are naturally dry and which do not require drainage, otherwise it is true, as a rule, that an efficient system of under-drainage is of primary importance upon all lands that are at all wet, it being obvious that, by the removal of bottom water we increase the power of absorption, admitting into the soil a free passage of air, which had hitherto been excluded by the presence of stagnant water, thus materially increasing the temperature and fertility of the soil, and rendering it more congenial to the roots of plants. With these comments upon drainage, we must now consider the advantages to be derived from deep cultivation, and it must be acknowledged that within the last few years a great improvement has been made in this respect, and in the management of land generally. There are, however, in the United Kingdom vast tracts of land, which produce but miserable, scanty crops, the result of inadequate surface stirring for generations, with barely mould enough to cover the roots of the plants, which thus become the sport of every change of temperature. This land, under deeper cultivation and more liberal treatment, might be rendered tenfold more productive, and far more valuable than it now is. However, I leave the management of land in general to those who are more closely connected with it, and will confine my remarks more especially to spade-husbandry as applicable to garden management, where, doubtless, a more advanced and sounder method of cultivation is in practice, as a more varied, complex assortment of plants has to be dealt with; but where there are to be found exceptional cases, more particularly in villa gardens, in which a want of knowledge of management is frequently evinced. In gardens the drainage must be ample, and at least 4 feet in depth, as the roots of plants are not so liable to enter the pipes and cause derangement. There also is an opportunity afforded for turning the soil up deeply without danger. The after management must be governed by the character of the soil. If it is of a rich, alluvial texture, little remains to be done except to deeply stir and work it over. Unless this is attended to, garden land that is long under cultivation—what with heavy manuring and the accumulation of vegetable decomposition — becomes so glutted with humus as to be inert and most objectionable as food for plants, although the humus soil contains a large proportion of carbonic acid, which constitutes one of the chief elements which form the food of plants. They are most appropriate when intermixed in reasonable proportions with the natural staple. In the management of soils containing a large proportion of clay or alluvium of a close dense nature, which retards the access of air, it will be found most advantageous to thoroughly break up the under-lying stratum, care being taken to keep the surface soil uppermost, allowing it to amalgamate gradually with the broken up substratum, as by suddenly upturning this crude soil, much inconvenience and injury might result, as it requires long exposure and liberal management when brought freshly to the surface, to render it fit for use. Thus exposed to the ameliorating influence of the atmosphere the texture is rendered friable and penetrable by the roots of plants; clay soils may also be improved by being intermixed with sand or other material that will induce porosity. Clay soils are also greatly improved by being slightly burnt. Soils, which contain lime, as well as those of a sandy nature, may be greatly improved by the use of clay; and the depth of such soils may be increased by the addition of such materials as are of a corrective, lasting, and fertilising character. George Westland.

WELL-PRESERVED TOMATOES.

There has been such a marked increase in the taste for Tomatoes during the past few years in London, and the vast public which has to depend on the market has such difficulty in getting good supplies, that I venture to make known to your readers the following facts :—Tomatoes are extensively grown as a field and garden crop throughout Canada, New England, and the United States, from Long Island to the shores of San Francisco Bay. They grow everywhere well; in the fertile soils of the eastern States, in the winterless gardens of the Pacific coast, or in the wastes of Utah. A generation ago the Tomato was only grown as a curiosity, here and there; it is, perhaps, more used by the Americans than any other product of the garden, and Tomatoes canned by houses of good repute are such a precious gain throughout the autumn, winter, and early spring that it may be as well to warn the public that some samples now sold as "best" in conspicuous shops in London, are very bad indeed. They contain green unripened fruit, and have a peculiar acrid taste, as if the can and the acidulous properties of the Tomato had quarrelled. I recently ordered a sample of the Bordertown (a New Jersey brand), and gathered from the present year's crop. It has just come to hand. Anything so satisfactory in the way of preserved fruit or vegetables I have not tasted; the contents taste as well as if gathered from the plants fresh. There is no admixture of any foreign body, such as occurs in Tomato sauce—only the pure Tomato, which requires to be warmed to be perfectly enjoyable. Doubtless there are various other brands equally good. I am surprised that the producers do not open agencies here, for there is no doubt, that even at present, London could consume the produce of many scores of fruit farms, if such brands as I allude to were obtainable. I may add, that I have no interest in the matter beyond the desire to make known a real boon to every housekeeper who cares to have such a delicacy always at hand. I first tasted good Tomatoes in America, a few years ago, and have always thought them indispensable since, though I can rarely get them good in London. Unfortunately, the autumn supplies of "fresh" Tomatoes in our markets are often bad, spotted, and even rotten. The very extensive supplies of Tomatoes that come from Lisbon, must be gathered too green, and are often in bad condition on arrival. This year too, the Potato disease virulently attacked the crops of Tomatoes in the London market gardens. Therefore, this admirable Tomato-preserving industry is of as great, if not greater, value to us than to the people among whom it originated—from their desire to enjoy through the long white winters of eastern and northern America, the produce of their summer fields. R.

Reproduction in the Mushroom Tribe.—At a recent meeting of the Woolhope Club, Mr. Worthington Smith read a paper on reproduction in the Mushroom tribe. He concludes from his microscopic observations that, so far from infusorial animals being spontaneously generated, they are only differentiated forms of already living cells. He finds that boiling does not destroy the germ of life. He boiled infusoria and hermetically sealed the tube. After a month, a drop of water from this tube was examined under the microscope, and all appeared dead—certainly all were motionless. In a few minutes appeared signs of life, and an hour after, infusoria were found in the active enjoyment of existence.

Farmyard Liquid Manure.—This manure is supposed to consist of the drainings of the stables, cow-houses, and pig-styes generally, and is one of the very best fertilisers that can be employed, as it contains, in abundance, nearly all those elements which are most nourishing to plants. Unfortunately, it is generally allowed to run partially to waste in most places, when it could easily be saved. A large tank, conveniently situated to catch the drainings from all the cattle sheds, should always be provided, but the rain water should be diverted from it. To collect the washings from the domiciles of all the different animals into one place is, however, the most desirable plan. The tank should be covered over, and a pump should be fitted into it, so that a water-cart or barrow can be placed under it, and the liquid pumped into it direct. We use this manure more extensively than any other, applying it to Strawberries in pots at the rate of a teacupful to three gallons of water, and at the same rate to many kinds of greenhouse plants; but to Pines, Figs, Vines, Peaches, &c., it is applied three times as strong. Provided it is of a healthy, open texture, it matters little what such things as Pelargoniums, Cinerarias, Fuchsias, Pines, pot Vines, &c., are potted in, if they are supplied regularly and often with this liquid in a weak state. It is not a commendable plan to water with liquid manure of any sort on stated days of the week or fortnight, perforce giving it to the plants whether they are dry or not, that they may not miss their supply; it is better far to apply it in the daily waterings, but proportionately weaker. In this way every plant gets its share, and none are missed. —J. S.

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

Egyptian Turnip-rooted Beet.—This is an excellent variety for shallow soils; its colour is good, it comes into use quicker than the long-rooted kinds, and, having a small top, it can be grown closer together than most sorts, which, in small gardens, is a great advantage.—W. Divers, *Wierton, Maidstone.*

Tomato Grafted on the Potato.—My experience of grafting the Tomato on the Potato does not coincide with that recorded at p. 460. Three years ago I tried the experiment—the Tomato produced a large yield, consisting of some nineteen good-sized fruit in an 8-inch pot; the Potato made several attempts to throw up a stem of its own, but was not allowed to do so, and when turned out of the pot not the slightest appearance of any tubers could be seen. The fruit was pronounced to be excellent.—A. Hossock, *Ragley.*

COTTAGE AND ALLOTMENT GARDENING.

The general extension of the allotment system at a period of much discontent is admitted to have been productive of good results by diminishing crime and promoting comfort and contentment among a large section of the working classes in rural districts. By the allotment system many poor householders acquired possession of a few roods or more of garden ground, who had never enjoyed such a privilege before; and the way these patches of gardens—often distant from the house—are utilised generally cannot fail to impress anyone who takes notice of them. Next in importance to the possession of a garden, however, by the artisan or labourer is the knowledge how to crop it in order that it may be a real source of profit as well as pleasure to him; there are many—the greatest number, in fact—to whom good crops of Potatoes and other vegetables are of far more importance than anything else. A good deal of sentiment has been talked about gardening as a recreation for the working man, the moral influence it exerts, &c., and there is no need to dispute the good results in this way; but those who know most about it will tell you that the cottager looks upon his garden pretty much in the same light as a market gardener, and that the sure way to make him take an interest in it is to show him that it will pay. We have known shrewd cottagers, who cared little for gardening for its own sake, awakened into enterprising gardeners on discovering that they could make money by their crops. Experiment has long ago settled the question that spade husbandry will pay better than any other, within certain limits, and when intelligently carried out; but this, with the cottager, is the drawback. Generally speaking, he is ignorant of gardening, setting about his work neither skilfully nor methodically; but, nevertheless, getting sufficient returns for his labour to encourage him to continue. The things that he needs most, such as Potatoes and a few common vegetables, he can grow tolerably well, but of the culture of many useful vegetables he knows little or nothing, and of the culture of hardy fruits, such as the Apple, Pear, Apricot, and small fruits, he is profoundly ignorant. The aimless way in which he digs about his trees or prunes them—when he does attempt the latter operation—show this plainly enough; and there are many above the rank of the working man to whom these remarks apply.

Influence of Cottagers' Shows.

Local cottage horticultural societies have undoubtedly done much to promote an interest in gardening; but, to a great extent, their influence has been misdirected. Living in one of the most populous districts in England, where cottage gardening is abundantly encouraged in this way, and where it is perhaps as well done, too, as anywhere else in the country, I can speak from experience on this point. No village is without its flower show. The colliery villages have frequently their own, and the productions exhibited at any of them are of a highly creditable description; but they do not represent the state of gardening in the district, for the subjects are mostly grown for exhibition only, and, after the show is past, the exhibitor's interest in his garden is gone for the time being. The honour of getting a prize is not disregarded, but the money value of the awards is the chief incentive, and is positively a temptation to fraudulent practices, which are not easily prevented. For example, if A. suspects that B. is likely to beat him with Onions, he does not hesitate to borrow a few superior bulbs from C. to improve his collection, returning the favour in kind, perhaps, to help the latter on some other occasion. The result is that the would-be honest exhibitor, suspecting such tricks, either withdraws from the contest altogether, in disgust, or is tempted to adopt the same tactics. Sometimes the exhibits are not borrowed, but stolen. That these practices are not uncommon we can testify, from a pretty extensive acquaintance with cottagers' shows in some official capacity or other. Only the other day, the vicar of a populous parish, and one who interests himself much in such matters, complained of the extent to which such practices were carried on in his own parish. It is only possible to check such evils by a system of supervision which is not always practicable. Visiting the gardens of intending competitors previous to the show is the plan adopted in some cases, and tends somewhat to make exhibitors more careful, but does not always prevent imposition, and it is difficult to prosecute investigation when fraud is suspected. Of course, no horticultural society could long exist without the periodical exhibition. The "show" is the nucleus around which the chief interest gathers, and, above all, it provides the most of the funds; but one feature which might be brought into greater prominence than is usually done in connection with the exhibition is the giving of prizes for the best-cultured gardens. Let cottage horticultural societies direct more of their influence into this channel, and the results will be more apparent. On one extensive domain with which we are acquainted, where prizes are distributed in this manner, the cottagers and allotment tenants being divided into separate classes, the gardening is of a higher order; and many of those who begin by cultivating their garden for a prize at first, have discovered how otherwise profitable their produce is, and realise a considerable sum annually by selling it. In numerous instances Cucumbers are grown in home-made structures, and pay extremely well. In one case we know of, a cottager sold about £20 worth in two years. One thriving village society in the neighbourhood devotes a considerable portion of its funds to garden prizes, and with apparently the most happy results. The flower gardens in front of the cottages are marvels of neatness, and the kitchen garden plots are profitably cropped. All do not expect prizes, of course; but the force of example has told its own tale. These cases are exceptions, however, for garden prizes are not a common feature; but the system is well worth trying wherever practicable, and the power lies with local horticultural societies and landed proprietors. If, in addition to offering prizes, a few simple instructions how best to manage a cottage garden and utilise those manurial substances generally to be disposed of by cottagers, were issued at the same time, it would, doubtless, help to promote success, for, as has been stated, the cottager is ordinarily ignorant in gardening matters.

Size and Situation of Cottagers' Gardens.

Another question of some importance is the situation and extent of the gardens. It is a noticeable fact that when the garden is attached to the cottage it is generally best cultivated and cared for, and always affords the greatest pleasure to its proprietor. These are sufficiently good reasons for providing the garden at the cottage whenever practicable. In populous villages where space is restricted the allotment system must, of course, be adopted, but the gardens should not be far from the houses. When everything in the shape of manure, water, or crops has to be carried perhaps a quarter of a mile or more it seriously increases the labour of cultivating it—always more or less of a task at the best to those who have only their evenings to spare for the purpose. As a rule, a parcel of allotments has anything but an interesting aspect. Laid out in an open field, the plots in parallel strips, and the whole surrounded, but not always, by a temporary fence, is the usual arrangement. A tree or a bush of any kind is seldom seen, and in some localities the want of shelter is grieviously felt in spring. The drainage, too, is often bad, and the site is not always well selected. Something like a methodical arrangement in laying out and planting the ground might in all cases be followed and adhered to between the landlord and his tenants, but in the first instance the situation and soil should be well considered. The ground should slope gently to the south, south-west, or south-east, or it should be quite level; it should be well drained, and the surface soil should be a spade's depth to begin with, though this is not of so much consequence if the sub-soil is tolerably good and can be worked up in time. The ground, if extensive, should be intersected by a path sufficiently wide to admit a cart, and the whole should be substantially fenced in to prevent inroads from cattle or game. Hares and rabbits are a great pest in allotment gardens in many places, often completely destroying all winter crops at the approach of severe weather. If shelter is not afforded by rising grounds or trees, a belt of trees should be planted on the north and east sides of the gardens with that object. A cordon of tall, vigorous-growing fruit trees would serve the purpose, and also afford a quantity of fruit, which could be apportioned among the holders of the ground, and such as cultivate their gardens well. Of course the trees should be planted by the landlord.

Fruit Culture in Cottage Gardens.

As regards the furnishing of the plots themselves, much naturally depends upon the tenants, but a few simple rules drawn out for their guidance, and to which all desirous of possessing a garden were compelled to subscribe, would ensure some degree of uniformity and method. Fruit culture should be encouraged, and if every plot-holder were compelled to plant, say a few dwarf Apple or Pear trees, Gooseberry or Currant bushes, at the north or east end of his plot, he would at once provide shelter to his crops, and ensure a supply of fruit. Fruit trees are now so cheap as to be within the reach of anyone; and, from what we have seen, we think much might be accomplished in the way of Apple and Pear culture alone, in small gardens, by simply planting hedges of trees on the Quince and dwarf Paradise stock, and leaving them to grow almost as they liked. This season we saw a hedge of Apple trees on the French Paradise stock, weighted to the ground in most instances with fine large fruit. The trees had been planted four years, and had never been cut back—a plan which, together with the dwarf stock, ensures early fertility. This is the only style of fruit-growing admissible in allotments, for large trees could not be grown in small plots. We have seen something like this system attempted in individual instances, with most satisfactory results; but, as a rule, no order or system is either followed or insisted upon; hence an allotment quarter generally presents as untidy and disorderly an aspect as one could well conceive. Here, perhaps, one plot is carefully cropped and tended, the next only indifferently so, and the third is probably a neglected wilderness of weeds, which cast their seeds abroad in all directions, unless, as sometimes happens, the adjoining occupiers co-operate for their destruction. The inspection of hundreds of allotments annually enables us to say that this is a real picture. It is pleasing to state, however, that numerous examples of praiseworthy skill and industry could be furnished, and no great lack of interest is exhibited generally; but the want of skill, misdirected energy, and the absence of some kind of supervision, are only too apparent in most cases. If the proprietor of the ground only made it a condition with his garden tenants, as he does with his farm tenants, that their gardens should be cultivated and attended to in a reasonable way, it would go far to remedy things, and would at once lift up the status of cottage gardening to a higher level. What applies to allotments applies also, and with greater force, to cottage gardens. The cottager who has his garden at the door has many advantages, and not the least is the wall space at his disposal for the culture of fruit trees, but which he rarely utilises in this way. We have known nearly as much money realised for a crop of Apricots, grown on the end of a cottage, as paid the rent. The great difficulty with the cottager is the training of his trees on a wall. Whether he attempts the fan or horizontal method, the difficulties are too much for his patience or time, and he has to wait too long for the results. By the modern system of cordon training, however, he may cover his house from base to summit in a few years, and he may gather fruit in quantity at the end of the second year. He can buy maiden cordon Apples and Pears, whith shoots from 3 to 4 feet in length, at about 4d. apiece, and he has only to plant these entire and train them up as straight as a walking-stick or round corners, as may be needful, and pinch the shoots during summer at every second or third joint as fast as they grow—always letting the top extend as far as it will. Stone fruits may be trained in the same manner, but they succeed best by the fan method. It is not suggested, of course, that the cottage walls should be monopolised by fruit trees—flowers must have a place; but these are already not so much neglected, while fruit culture is all but a dead letter.

Formation of Cottage Gardens.

Cottage gardens are necessarily all shapes and sizes, and their appearance and usefulness are often marred by fanciful arrangements in the laying out of the ground; the simpler the plan the better, and all whimsical oddities, such as rockeries stuck full of old oyster shells—a common feature—and too much floral display at the expense of useful crops, should be discouraged. There is a decided inclination on the part of cottagers in these days to ape the parterre of the gentleman's garden, usually with very ridiculous results. Nothing surpasses one or two simple beds, laid out on Grass or gravel, in front of the windows, and filled with hardy plants that bloom throughout the greater part of the year, and nothing gives less trouble. If the cottager can supplement his stock with a few bedding plants from the nearest garden establishment, or raise them himself, there is no objection to his doing so, but it is the sort of thing that should not be overdone. In addition to the beds, a narrow border round the house for fruit trees and flowery creepers, &c., should be provided. In the kitchen garden the fewer walks, angles, or edgings, the better; save all the ground for crops possible. Plant the fruit trees where they will not shade the crops from the sun, but where they will help to shut out cold winds; and, as far as practicable, keep Gooseberry, Currant, Raspberry bushes, &c., by themselves. When they are scattered among the vegetable crops, either one or other is sure to suffer in digging and working about the ground, and more room is lost than need be. Among fruits free-bearing Apples, such as Lord Suffield, Tower of Glamis, Hawthornden, and such Pears as Marie Louise, Beurré Clairgeau, pay best. Gooseberries and Currants also pay, and are always saleable; whilst Strawberries and Raspberries pay better than either if they are well cared for, not otherwise. Of vegetables the greatest breadth should be devoted to Potatoes—at the rate of one row of first earlies, two rows of seconds, and three of lates. Onions, Cabbages, Brussels Sprouts, Greens, and Savoys, and Cauliflower come next in importance and value; and after these come Beans (Broad), Peas, Scarlet Runners, Turnips, Parsnips, Leeks, Celery, Rhubarb, Lettuce, and a bush or two of Sage, Thyme, Pot Marjoram, and a little Mint.—" Field."

THE OXFORD BOTANIC GARDENS.

Dr. Hooker appears to favour their retention, with the horticultural structures modernised, whilst Dr. Acland, on the other hand, appears to favour the entire removal of the gardens to the " Park," in juxtaposition to which many of the more modern scientific institutions are situated. Prior to any explanation it may appear somewhat unintelligible, when I say that I agree with both opinions. This, however, I do most thoroughly, and here are my reasons:—Dr. Hooker's appeal for the present garden to remain as it is, I at once endorse, because I look upon Oxford as one of the centres of law, learning, and literature. Her old garden has historic renown such as no other possesses, and, what is more, the characteristics of the plants cultivated therein are unique in some instances, and equally historic with the institution itself in others. If there is one botanic garden that, more than another, claims the title of " Refugium Botanicum," it is that of Oxford; and be it observed, that on this very fact hinges in my opinion the true value of a botanic garden. The wheel of fortune and of fashion is ever on the move; the popular plant of to-day becomes the unpopular one of to-morrow, and, knowing what fickle jades Fortune and Fancy are, would become lost to the country altogether, were it not that in such institutions as this, they are enabled to find a home, and rely upon it, they have only to wait the completion of the ordinary cycle to be restored once again to their ancient pedestals, and to their place in public favour. Such a " Refugium " was the Oxford Botanic Garden under the elder Mr. Baxter; and such I was pleased to find it in July last, under his son and successor. And surely the city that rejoices in its neatly kept quadrangles, in its provosts' gardens—perfect little Edens, stamped with the impress of arborescent materials that rarely are at the disposal of the modern landscape gardener—will find no difficulty in retaining this time-honoured institution as nearly intact as possible. Its extensive collection of quaint old succulents is in perfect harmony with the old place itself; these and many other old and interesting plants might be retained, in fact, the cream of the curiosities. What then, it may be asked, is to be done with the rest? Here I must have a word to say as to Dr. Acland's suggestion. I fully endorse his ideas when he says, the gardens are too small for the modern requirements of a botanical garden; and equally do I agree with him, when he suggests the formation of a new one in the park. Ample accommodation could be spared from the 80 acres wherewith to form a new garden without in the slightest degree interfering with the picturesque character of the park—an element which no doubt exists, but, possibly, it may be my fault that I was unable to discover it. There let them by all means establish a new garden on a vastly extended scale, with all the modern appliances—a garden where, at least, a small section may be devoted to experimental purposes, to the physiology of plant life, and other, too, often neglected departments of vegetable economy, so far as this country is concerned. The present flat surface of the park would put to the test the artistic power of the landscape gardener; but what was done years ago in the Inner Circle, Regent's Park, can equally well be done now at Oxford. I have alluded somewhat disparagingly to the style of the present park. In fact, it is little more than a large open space surrounded by a belt of planting, in which, I was pleased to note, a very extensive collection of trees. Among these, deciduous as well as evergreen trees have been planted, constituting what will be at some future time a highly interesting frame-work, wherein, besides the scientific institutions, there will still be left ample room for the public recreation. We, therefore, trust that the ways and means will be forthcoming, sufficient to retain, as Dr. Hooker suggests, the old gardens, whose massive walls have become time-honoured localities for some of our British plants, and at the same time to carry out Dr. Acland's suggestion of establishing a new botanic garden as well. I admit that in few towns would this be practical, but surely the glorious old city of Oxford, with all its collegiate wealth, can, and I trust will, constitute itself an exception in this respect.

Hull Botanic Gardens. Jas. C. Niven.

The Arrangement of Botanic Gardens.—There is a phrase in last week's "Nature" which well illustrates the ideas of a certain school of botanists as to design in botanical gardens. The writer, speaking of the proposed changes in the Oxford Botanic Gardens, deprecates "transforming a botanic garden into a pleasure ground, *in which the needs of study must once more be subordinated to artistic effect.*" With reference to the words in italics, as well might it be said to young artists, "It is wrong to learn painting under the influence of a noble gallery of pictures!" If anything is wrong and foolish, it is the suggestion that botanical study cannot be pursued in a garden artistically beautiful. The greater the natural beauty in a garden the more likely is the student to become a lover of plants and a good botanist. Who, for example, would not rather study plants on Mr. Backhouse's beautiful rock-garden than on many ugly excrescences that we need not name in public gardens? Is not the study of trees more attractive as they stand in groups round a glade in a beautiful park than in some narrow old botanic garden where their naturally stately forms are crammed into narrow beds, as in many old-fashioned botanic gardens? Are the plants in Glasnevin, which is, in parts, a picturesque and beautiful garden, any the less interesting or attrative than in the old Chelsea Garden, which consists of a series of squares, and beds, and walks? Surely the herbarium and not the garden is the place for packing plants closely together in a "systematic" manner.

Anomatheca cruenta.—This pretty little bulb blooms about the end of July and grows about 9 inches in height; its flowers are deep crimson with a dark spot on the three last divisions. Several bulbs of it should be planted together to make an effect, as the flowers, though brilliant, are not large—perhaps half-an-inch or a trifle more in diameter. It requires a well-drained soil and, moreover, light and warmth, to do well; in fact, under ordinary circumstances, the bulbs should be taken up and stored during winter.—Oxon.

Paddington Flower Mission.—The Paddington Flower Mission began on April 5th, 1875, and ended on October 28th. Every Thursday during these seven months, parcels of flowers were received and distributed; 3, Leinster Street, being the centre of operations. About thirty ladies took part in the work, there being usually from one to six present, the numbers varying according to the season of the year. The weekly receipt of flowers varied, one being the smallest amount of parcels received at a time, occasionally it reached to eighteen, the parcels came from all parts of England and a few from Scotland. Many of the donors sent almost every week, some fortnightly, others more or less frequently. The necessary unpacking, and arranging and distributing generally took some hours, but the time and labour were freely given by the ladies who took pleasure in the work. Distribution was made during the season of upwards of 12,300 bunches of wild and garden flowers. Some of the institutions received their supply of flowers regularly every week, others more or less frequently, according to circumstances. More than once flowers were given to bereaved individuals to lay over their dead at time of burial. Two or three contributions to Harvest Festivals were made from the Paddington Flower Mission. Some hundreds of Geranium plants were received from the authorities of Hyde Park, and distributed through the agency. A collection of money was made one day in the flower room, and by means of the few shillings thus raised and the liberality of one of the Paddington tradesmen, a small flower glass was presented to each patient's bed in St. Mary's Hospital.

THE "SATURDAY REVIEW" ON THE HORTICULTURAL SOCIETY.

The deplorable condition into which the various institutions at South Kensington which derive their origin from the Great Exhibition of 1851 have fallen, renders it desirable that the precise position of these abortive speculations should be distinctly understood. It is now several years since the Royal Commissioners of 1851 have published any statement of their affairs, and it is due to the public that it should be told how the account stands. The Horticultural Society has avowed itself practically insolvent; the Directors of the Royal Albert Hall of Arts and Sciences are understood to be at present hatching a plot to compel the purchasers of boxes and stalls to pay a second time for privileges which hitherto have been little better than a mockery; and the International Exhibitions have sunk into an auction-room for foreign daubs. It is impossible to imagine a more impressive commentary on the artifices and pretensions with which these enterprises were originally started than the melancholy state of decay and discredit into which they have rapidly declined. Whenever the history of the great South Kensington scheme is written, it will be found to be a curious and highly-instructive narrative. It will be remembered that the first Great Exhibition left an unfortunate legacy in the shape of a surplus of some £187,000, which was placed in the hands of Royal Commissioners, to be applied to the encouragement of science and art. There was then a good deal of innocent enthusiasm about the arts of peace, and a little knot of adepts in puffery and jobbing saw an excellent opportunity of turning the spirit of the time to their own account. They thoroughly understood the secret springs of British snobbism, and how to play with great names and sentimental loyalty for their own purposes, and they also appreciated the advantage of working under the cover of a patronage that dazzled the outer world. The project was accordingly conceived of converting the gravel-pits of Brompton into a new and magnificent suburb, where all the arts and graces, all the muses and sciences, should disport together under courtly protection. It was expected that all these attractions would at once make it the most aristocratic quarter of the town, and that the command of large sums of money might be obtained by judicious house-building speculations. It is a familiar device with aspirants for fashionable distinction to drop the familiar family name and try the effect of a more distinguished appellation, and, just as Smith becomes Montmorency, so Brompton rose into South Kensington. In pursuance of this project the Royal Commissioners were readily persuaded to invest their money in the purchase of an estate at South Kensington, part of which was sold as building ground and part leased to the Horticultural Society. The Commissioners agreed to spend £50,000 on ground works, arcades, &c., on condition that the Horticultural Society should expend an equal sum in laying out a garden, and they further entangled themselves with the International Exhibitions of 1862 and successive years. In short they so managed their property that in the course of some five or six years the estate was overwhelmed with responsibilities, and deeply mortgaged. How matters stand now we cannot pretend to say, but it is scarcely probable that they have been much mended, especially as the Horticultural Society is at the end of its funds, and in debt to the Commissioners, and that the various International Exhibitions have been pecuniary failures. In a circular, which has just been issued, and which is signed by Lord Aberdare, "the Council of the Royal Horticultural Society have the pleasure of announcing to the fellows that they have succeeded in making arrangements with her Majesty's Commissioners of 1851, whereby the gardens are granted to them virtually rent free, but only upon the performance of one important condition—namely, that the annual income from subscriptions should be raised to £10,000." This may perhaps be a very liberal arrangement on the part of the Royal Commissioners; but it becomes an important question whether this transaction which involves a gift of public money, is for the advantage of, or just to, the public. Why, it may be asked should the Horticultural Society, more than any other speculative body, be supported out of the public funds? The Council proclaim in their circular that, should their appeal be unsuccessful, "the failure would be most disastrous to the interests of horticultural science; the project so warmly supported by the late Prince Concert, so hopefully accepted by the public, of bringing home to greater numbers than heretofore the means of studying horticulture, would, in that case be abandoned, and it would be for her Majesty's Commissioners of 1851 to decide to what new and more profitable use the twenty-two acres now occupied by the South Kensington Horticultural Gardens should be applied." We cannot say that such a result appears to us by any means so "calamitous" as the Council suppose. It would not be very difficult to find a new and profitable use for the funds of the Commisioners, and it would be quite impossible to find one more absurd, worthless, and unprofitable than keeping up the Horticultural Gardens. The pretence of promoting either the art or science of horticulture is of course notoriously a pure sham. The gardens have never been anything more than a fashionable lounge, where people go to gossip, flirt, eat ices, and listen to the music of a military band on fine afternoons. These amusements may be innocent enough in their way, but it is an obvious imposture to call them art and science. The flower shows at South Kensington are much inferior to the flower shows at the Crystal Palace and other places which do not receive a subsidy from the public, but depend on their own resources, and yet honestly pay, which the Horticultural Society does not, the prizes they offer. As for science, indeed, there is scarcely even a pretence of doing anything for it. The scientific interests of horticulture have been systematically sacrificed to the object of getting money by making the place a mere pleasure ground. At one time there were, we believe, serious thoughts of croquet and bowls, and now there is talk of a skating-rink. There is no reason why voluntary public support should not be sought for such recreations, but it is undoubtedly a scandal that public money should be appropriated to assist a private speculation on a pretext so glaringly false and empty. The Horticultural Society has chosen to waste its funds on all sorts of jobbing and mismanagement wholly unconnected with horticulture, and it is to be hoped that the abuse will now be checked by the simple plan of stopping the misapplied allowance.

APPLES FROM THE NEW WORLD.

Messrs. Elwanger & Barry have sent us, from their great nursery at Rochester, Western New York, a most interesting collection of the finest American Apples. Several of them are varieties well known in this country, but the majority and the best are strangers to us. In size these Apples do not surpass what one may see among fairly well-grown fruit here; in colour they are much higher than ours, several of the kinds being a deep purplish-red; in flavour, the really essential point, they are very remarkable, and far beyond our own fruit. At the present season in London, after Cox's Orange Pippin, the Ribston, and now and then the Cornish Gilliflower, we have no Apples that can compare with the high and delicate flavour of the best of those sent to us; whether this is owing to a sunnier and dryer climate or to any inherent peculiarity in the fruit itself it is not easy to say; it is known, however, that our own fruit is being much influenced by the season, situation, nature of the soil, &c., and it is likely that a sunnier and dryer climate must have an effect on flavour. The present season, which has been an unusually wet one, has had a considerable effect in altering the keeping qualities of British Apples—the Ribston Pippin for example which often keeps good until Christmas, is now, at the end of November, quite done; but the Ribston Pippins, received from Rochester, are firm, juicy, and delicious. It is not, therefore, unlikely that, in attempting to cultivate some of the fine varieties hereinafter mentioned, we, in England, might find a falling off in flavour. On the other hand, our own varieties, such as the Ribston, seem to improve under the conditions to which they are subjected in the New World. Some of the Apples sent belong to the division which American growers term "sweet," and are the first samples we have tasted of these. In America, large numbers of Apples have been raised, and are in cultivation, in which the sugar so greatly preponderates over the acidulous principle of the fruit that the flavour of some varieties seem, to an English palate, to be that of a new fruit. Apples are classified broadly into summer, fall, and winter kinds; and, in each section, there are Apples termed sweet and sour. Among the "sour" occur those which we think so remarkably delicious; and, among these, the best are the following:

King of Tomkins's County.—This struck us as, perhaps, the handsomest Apple sent, being very beautifully coloured, and of a size which we rarely find associated with good flavour in this country, and yet the flavour in this case was of a most delicious character. The tree is said to be a good grower and bearer, and very hardy; the fruit keeps from November till March. A couple of dozen of this fruit were all large and extremely beautiful.

Hubbardston Nonesuch.—This is also a superb Apple, distinguished, like the preceding, by great size, splendid colour, juicy flesh, and fine flavour. It is a Massachusett's Apple, said to be a strong grower and good bearer. It is used from November till January.

Jonathan.—This is a small and very pretty Apple, of a deep purplish-red, with toughish, strong skin enveloping the tenderest flesh we have met with in Apples. It is said to be very productive; and in use from November till April. It is the most delicately-flavoured Apple we have ever tasted, and is well worthy of trial in this country. As to appearance it is much handsomer than the Lady Apple of European gardens.

Northern Spy.—This fine Apple is pretty well known with us, and its merits so far recognised, as to need no description here. The specimens sent were very handsome, not perhaps quite as much so as the two first-mentioned varieties. The flesh of this also is very juicy and highly flavoured.

Baldwin.—This is the Apple which is now so often sold in the provincial towns of this country, successfully competing with the best local English varieties. It is a very fine dark red Apple, and good samples of it possess a very high and fine flavour. It is considered the best winter Apple in New England, and is found to succeed over a larger area than any other variety.

Fameuse or Snow.—This is a medium-sized crimson-coloured Apple, with tender and well-flavoured flesh. It is said to succeed particularly well in the Northern States.

Red Canada.—This is a very brilliantly coloured Apple, and must be very handsome on the tree; it is also a firm and well-flavoured fruit, and is in use from November to May.

Waggoner.—This is a medium-sized Apple, very highly coloured, and is said to be an excellent variety and very productive; it is in use from December to May.

Cooper's Market.—A medium-sized conical and excellent fruit, and evidently a good keeper. The tree is said to be hardy and productive.

Peck's Pleasant.—This is said to approach in flavour the Newtown Pippin, but we could not perceive the resemblance. It is a medium-sized smooth pale green Apple, very juicy, and with a pleasant sub-acid flavour. It is said to keep till April.

Pomme Grise.—This is an excellent little Russet, of a fine high flavour. It is grown extensively in Canada, whence it is shipped to England.

Twenty Ounce.—This is a very showy striped Apple, which seemed in the samples sent to be a little short of its best. It is a popular market fruit, said to be excellent for baking.

Tolman's Sweet.—This was the most interesting representative of the class of sweet Apples, the flavour being quite new to us. It is a full-sized pale yellow fruit, so sweet that one would hardly recognise it as an Apple. It is said to be much used, and excellent for cooking, and to be a very vigorous and productive tree.

Other kinds sent, which do not seem to be so attractive considered as eating Apples, or which we need not describe on account of their being well known here, are the Bellefleur, Monmouth Pippin, Rambo, Reinette du Canada, Rhode Island Greening (a famous and very popular late-keeping sort), Golden Russet, Roxbury Russet, Swaar, Green Sweet, and Fall Pippin. In The Garden of October 3, 1874, an article will be found in which the "sweet" varieties of American Apples are described.

The above Apples came packed in a barrel, in the way in which American Apples are sent to our markets, without spot or injury of any kind. Messrs. Elwanger & Barry also sent us a collection of American-grown Pears. These, as regards size and appearance, are not, as a rule, up to the level of good European fruit. The Lawrence seemed the most interesting fruit, a large golden-yellow kind with a richly-flavoured melting flesh. It is described as the most valuable of all the American early winter Pears, and the specimens sent were such as would compare well with the finest French or English fruit. A batch of Josephine de Malines were of very fine quality, and Winter Nelis, of average size, were even richer and higher in flavour than with us. Jones's Seedling, a very small Pennsylvanian variety, is distinct and of a rich flavour. The Pears were packed in a box, and did not travel nearly so well as the Apples. This, however, could not be expected.

Apples in Barrels and Exposed.—Alternations of heat and cold soon rot Apples. This is the reason that Apples keep longer in barrels than on open shelves; and barrels would be best, if we ("Cultivator") could only know when the decay begins, for, as soon as this commences, the whole barrel is soon spoiled. Wrapping each specimen in paper operates in the same way as barrels—excludes warm and cold currents, and preserves a uniform temperature. We have tried it on counted numbers of wrapped and exposed specimens, and found the wrapped ones to keep the longer.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

DECEMBER 1ST.

SUBJECTS of exhibition at this meeting were, as a matter of course, limited, foremost among them being a fine collection of Onions, from the Society's Gardens at Chiswick; three splendid Smooth Cayenne Pine-apples, from the Royal Gardens, Frogmore; a collection of Apples and Pears, from Mr. William Paul; and some very fine Cyclamens, from Mr. Clarke, of Twickenham. Mr. Laxton, and other growers, sent seedling Apples, mostly of indifferent quality.

Plants.—Mr. B. S. Williams furnished flowering plants of what was considered to be Oncidium Warscewiczii. It had flattish sharp-edged one or two-leaved pseudo bulbs, and bore golden-yellow flowers on a curiously-flattened simple spike. The sepals and petals are lanceolate, the latter being incurved, and the lip is bilobed, like a black cock's tail, and the bracts are large, spatheaceous, and membraneous. It is distinct and well worth growing. Mr. John Waterer, of Bagshot, contributed a basketful of Thujopsis borealis aureo variegata (Waterer's variety), the blue-green flat growths of which are variegated with clear creamy-yellow. Among Mr. Clarke's Cyclamens where white and blush-flowered Persian kinds, large and fine; and, in addition, a very attractive bank of ordinary varieties, including white, rose, lilac, blush, crimson, and purple forms. Mr. Ollerhead furnished a specimen of his Rose trellis, and a model of his system of tightening wire trellises and fencing, both being simple contrivances which seem likely to be useful to amateurs who grow Roses and cordon fruit tress.

Fruits.—Mr. C. Arnold, Paris, Ontario, exhibited four new hybrid Apples raised by himself. They were very showy, being high coloured, but only second-rate in flavour. Mr. W. Paul sent a collection of Pears, and also a small collection of Apples. Messrs. Kinmont & Kidd, nurserymen, Canterbury, sent three or four seedling Apples, none of which showed much merit, with the exception of the Winter Devonshire Quarrendon. This is a seedling from the well-known summer variety of that name, and, possessing as it does, much of its shape, colour, and flavour, will doubtless be an acquisition. Mr. Thomas Laxton, of Stamford, contributed twelve dishes of seedling Apples, by no means good, and from Mr. E. Clarke, Easton Neston, Towcester, came a handsome seedling Apple, the flavour of which was, however, only second-rate. Mr. Jones, Frogmore, furnished three Smooth Cayenne Pines, each of which weighed about 8 lbs. They were fine examples of good culture, and received the commendation of the Council. Mr. Westcott, of Raby Castle, showed three yellow-fruited Capsicums, viz.:—Yellow Gem, Prince of Wales, an elegant little plant, of slender habit, bearing a profusion of small pale yellow fruits, and Princess of Wales, a seedling obtained by crossing the two varieties Yellow Gem and Prince of Wales. Mr. Berkeley remarked that these yellow-fruited Capsicums yield a pepper quite distinct from Cayenne, being milder and much better than that sort for culinary purposes, especially for clear or gravy soups. He also remarked that, for some of our best varieties of hardy fruit trees we are indebted to the birds who carry the seeds to hedges or thickets, where they spring up and sometimes produce fruit superior to that of existing varieties. As examples of the truth of this statement, he cited the Bess Pool Apple, which was discovered wild in a thicket near Nottingham; and also a very fine Gooseberry, found in a hedge near Newark, in the same county. In alluding to the Pines from Frogmore, Mr. Berkeley said that they were grown in frames on beds of Oak leaves, 6 feet thick, the leaves being covered with about a foot in depth of turfy loam, in which the Pines are planted. In reference to the keeping of fruit, it was stated that Louise Bonne of Jersey Pears, which generally keep well for some weeks, have this year rotted at the core on the tree, a circumstance attributed not so much to the excessive wet as to the absence of sunshine, which we have experienced during the past summer and autumn. This is doubtless a fact, inasmuch as the evaporation of water, and the consequent condensation of the essential colouring and flavouring principle in fruits, mainly depend on sun heat and a moderately dry atmosphere, and wherever the roots descend into wet sub-soils, fruits invariably keep badly. This is a point which deserves attention, and one which is particularly observable in low-lying localities, especially in wet seasons like the present. Thus for example, late keeping Pears have this year ripened a month or two earlier than usual in several places in the Thames valley, and doubtless this has been observed in other districts. The subject of Apple-spotting next occupied attention. Mr. Berkeley remarked that he had failed to detect any Fungus or puncture by insects in the case of spotted fruit, and he considered the spotting of both Apples and Pears to be analogous to the cankering of the bark. Mr. Wooster alluded to the excellent flavour of the Cornish Gilliflower, and recommended its culture wherever finely flavoured Apples for winter dessert are desired.

Vegetables.—The Onions furnished from Chiswick, to which allusion has already been made, were the result of a trial carried on during the present year, one object of which was the rectification of the names now existing among them. Thus, Naseby's Mammoth, Improved Reading, Banbury, Oxonian Prize, Cutbush's A 1, Cantello's Prize, and Nuneham Park, are found to be all selection from the White Spanish, while Oscar and White's Intermediate are merely forms of the White Globe. Trebon's is a fine globular early variety; Brown Intermediate and Bedfordshire Champion are forms of the Brown Globe, as are also Williams's Magnum Bonum (a very good strain); James's Keeping, and Pear-shaped are also selections which vary but little from Brown Globe. Very Large Yellow or Straw Coloured is a sound flat form of good quality. One of the best Onions shown was a fine basketful of New German, a kind which resembles the Brown Globe type, but which is quite distinct from it, large and remarkably sound, the bulbs being heavy and firm to the touch. The New German may be best described as a fine selection from the Old Strasburg, which is a sound medium-sized bulb, and an excellent keeper. The Brown Spanish is found to be the type of several strains, such as Yellow Flat (an American form), Yellow Danvers, and others. The French Strasburg or Pale Red, Pale Red St. Brieuc, and Pale Red Niorte are forms intermediate between the old Strasburg and the Early Red, and are not of especial importance. We next come to a group of early brown or red varieties, including Naples Giant, Red Tripoli, Globe Tripoli, Red Italian, Tripoli of Genoa, and one or two others, which are valuable for their hardiness and earliness. A use to which these may be put is to cover the bulbs with 1 or 2 inches of soil in a warm pit or Vinery, where they will grow rapidly, and afford plenty of top for flavouring soups or salads; this growth being very mild, the plan is to be recommended. Amongst others of the autumn-sown varieties we noted Two-bladed and Giant Rocca—both brown forms of the Tripoli type—New Queen, Early White Naples, White Extra Early Nocera, and one or two others; these have silvery skins, and are as useful for early work as for their green growth in winter. Samples of Chives, Shallots, French Shallots, Garlic, Welsh Onion, and one or two forms of the old Potato Onion, Egyptian Bulbiferous, and American Perennial Tree Onion were also shown.

Classifying Potatoes at Exhibitions.—An exhibition of Potatoes has just been held at Birmingham, at which the Council issued a prize list, aiming at something like a sensible classification of this vegetable. Instead of trying to separate the varieties into "early" and "late" sorts, or into "kidneys" and "rounds," or any other fanciful arrangement, they offered prizes for types based on the nomenclature and discriminating list published by the Royal Horticultural Society. Thus all the innumerable kinds of kidneys, known by names numberless, which are clearly only Ashleaf Kidneys, and the equally numberless sorts which are nothing but Lapstones under different names, and the unascertained "new varieties," which an expert knows only as Regents or Dalmahoys, are separated into so many classes. The result has been that, for the first time in the provinces, a really instructive display of Potatoes was offered for public inspection.

Poisonous Plants.—The "Bulletin of the Upper Council of Agriculture," relates various instances of animals being poisoned by plants. Cows have died from eating Andromeda, goats from eating Rhododendrons, and horses from eating the annual Mercury. The toxical effects of these plants were successfully combatted by intelligent treatment, but some horses succumbed rapidly after having eaten some leaves of common Yew; and, curiously enough, whilst the intestinal and gastric mucous membrane showed no trace of imflammation, the lungs were much congested.

NOTES AND QUESTIONS—VARIOUS.

Urceolina aurea.—This is one of the most useful of indoor decorative plants; at this season of the year, its beautiful yellow flowers, tipped with green, being very freely produced when grown in a stove or warm conservatory.—W. WHITAKER, *Crewe Hall.*

A Double Magnolia.—M. Halleana appears to be of the same class as M. conspicua, but the flower is composed of about twenty narrow strap-shaped petals—on the whole rather smaller than those of M. conspicua—white, and very sweet. A little more and we shall have a double Magnolia.

Eurybia ramulosa.—This fine hardy shrub is now beautifully in flower at Tottenham, and, when better known, cannot, I think, fail to be grown extensively, the late season at which it blooms not being the least of its recommendations.—T. N.

Variegated-leaved Begonias.—These, when planted out in any corner or border in a stove in spring, and well watered throughout the summer, will come in usefully now, when flowers are not so plentiful as one could wish. They bloom freely, and they are not at all particular as to situation. Rex is still one of the best of them.—A. HENDERSON, *Thoresby.*

Russian Apples.—The following Apples from Russia are enumerated in Elwanger & Barry's fruit catalogue. They are represented as ripening in July and August; fruit almost transparent and beautiful:—Cardinal, Count Orloff, Grand Sultan, Grand Duke Constantine, Nicolayer, Peter the Great, Red Transparent, Rhinakowski, Serinkia, and Vineuse Rouge.

The Best Winter Cucumber.—We find a selection from the old Sion House to be the best winter Cucumber—in fact, we grow no other either in summer or winter, and we have not been a day without Cucumbers for nearly three years. Two years ago this winter we tried it against several other noted winter varieties, including Telegraph and Cox's Volunteer, but found none to equal it. —H. J. C.

A Great Shropshire Oak.—An Oak tree was felled, September 20, 1767, a Ludlow, in Shropshire, the produce of which (says "Eddowe's Shrewsbury Journal") was 27 tons of timber, 43 cords of wood, 200 park pales, and 5 cords of brackets. A bough broke off before the tree was cut down, which weighed 7½ tons, and three men were employed a month in stacking it. The whole tree was valued at £140.

The Loquat out of doors in Devon.—As the Loquat is recommended (see p. 472) for this purpose, its hardiness cannot be generally known. I have two plants of it which have stood unprotected on a south aspect in the pleasure ground here quite uninjured for several years. The largest is a branching shrub, 9 feet high, standing alone. The fine leaves of these shrubs contrast strikingly with those of other evergreens. I raised both plants from seed several years ago.—JOHN GARLAND, *Killerton, Exeter.*

No. 212.] SATURDAY, DEC. 11, 1875. [Vol. VIII.

> "This is an art
> Which does mend nature: change it rather: but
> THE ART ITSELF IS NATURE."—*Shakespeare.*

NOTICE.

Some time ago we announced the preparation of a serial Magazine, to be called THE GARDEN FLORA, *planned to illustrate, in colour, the best of the newer flowers and fruits. In collecting materials for the work then proposed, the idea arose of incorporating it with* THE GARDEN. *This has now been done; and every week, from the beginning of the New Year this periodical will contain a Coloured Plate of some new or rare flower or fruit likely to prove of permanent value to our gardens. In fact, we have married* THE GARDEN *to* THE GARDEN FLORA. *The sundry issues of Coloured Plates, during the present year, were intended as experiments to test whether the ways and means of the young couple were sufficient to provide for a happy and prolonged co-existence. Other difficulties, postal and artistic, had also to be surmounted before we could make definite arrangements for their needs. One month's Numbers will henceforward contain more Coloured Plates than are given in monthly magazines of a very much higher price. While adding so much, all the existing characteristics of* THE GARDEN *will remain as before, or be improved. The Series of Coloured Plates will enable us, in addition to the best class of woodcuts, to include in the Paper every kind of interest sought for in horticultural literature. Subjects for illustration will be most carefully selected, the best fruits, as well as the choicest flowers, being illustrated, while coloured landscape sketches will also be given where they appear more desirable than wood engravings. All plants and fruits will, as a rule, be proved before they are chosen for illustration, the object being not so much mere novelty as real merit. As to the truthfulness and artistic value of these plates, we have taken care that they should be of a high order. Mr. Noel Humphreys, Mrs. Whymper, Mr. F. W. Burbidge, Mr. Hyde, and Mr. Hull have already made drawings for the series now in preparation, and many of them have been already reproduced in the best manner.*

PUBLISHER'S NOTICE.

Henceforward the price of THE GARDEN *will be* 6*d. weekly (through all booksellers and newsvendors, and at the railway bookstalls), the Monthly parts,* 2*s.* 6*d., and the half yearly volumes, elegantly bound,* 18*s. Where newsagents or booksellers deliver the paper regularly, flat or unfolded copies may be procured, and readers are advised to obtain the work in that way, so as to prevent injury to the Coloured Plates from folding, and in their way through the post. As, however, many readers cannot get the paper in this manner, it will also be posted regularly, as usual, from the office at the following rates, including postage:—For a year,* 28*s.; for a half year,* 14*s.; for a quarter,* 7*s. Desiring, however, that subscriptions should mostly date from the beginning of the year, and wishing thereby to simplify our accounts, we make a reduction in the case of yearly subsriptions, dating from January* 1*st,* 1876, *which, if paid in advance, will be* 26*s., instead of* 28*s.*

CHURCH DECORATIONS AT CHRISTMAS.

By ANNIE HASSARD.

THE decoration of churches is, for the most part, the self-imposed task of the ladies of the congregation the week before Christmas day—at least that portion of the work in which evergreens are made use of—bouquets and floral ornaments of a similar description not being arranged till Christmas eve, as they will not keep fresh for any length of time. An empty room is the best place in which to arrange the decorations, as, should the weather be damp or snowy, the work will be found to be of too dirty a character to be carried on in a furnished room; if the school-house be near the church it will also be found a suitable place for the purpose. Evergreens are generally furnished in large quantities by those who have grounds and shrubberies in the parish, and if these are sorted as they arrive, and each variety is placed by itself, it will be found much more convenient than having, perhaps, to turn over a whole heap before one comes to a branch of any particular variety which may be required. It will also be found a good plan when the construction of the various ornaments is about to be begun, and the large branches of shrubs are one by one brought into the room, to cut the branchlets off at the desired lengths, and then to place them according to their variety in separate baskets, the stripped branch being taken away. In making Christmas decorations the following appliances will be required for the evergreen portion, viz., reels of binding wire, thick card, fine twine, large needles, green thread, scissors, and a pair of small wire cutters. As a rule, the east end or chancel of a church is that which is most fully decorated—at all events, the prettiest decorations are usually placed there—but it will be best to describe the most effective manner of decorating different portions, such as pillars, arches, &c., and, where these exist, the forms of decoration which I shall enumerate can be adopted in any church, irrespective of size or design. As far as is possible, the use of nails, or anything likely to permanently disfigure the interior of the building, should be avoided.

PILLARS.—These are generally circular or flat-sided; in the former case, they look best twined from base to capital, with a wreath or garland; but, if flat-sided, a straight, upright wreath, running up the centre of each face, is by far the most effective arrangement. The garland looks best formed of such shrubs as Holly, Portugal Laurel, Bay, variegated Euonymus, Laurustinus, Arbor-vitæ, Cypress, Thuja, &c. Into these can also be worked with good effect the Laurustinus blooms, Holly berries, and fruit of the Arbutus. Garlands such as these are best made in the following manner:—Take a piece of thick cord or fine rope of the length of the desired garland—or a foot longer, perhaps, is better for a beginner, who, in making it, is apt to contract it—make a loop on one end, and pass this loop over a nail or little hook driven into a table or bench for the purpose, and then bind on this rope with twine the branchlets of evergreens, mixing the varieties tastefully, as you proceed with the work. One turn of twine is quite enough to fasten on each little bunch of evergreen, and care should be taken to work in the berries at equal distances, or the effect will be spoiled. These garlands need only be made with one face, and flat; for, if round, they do not rest so well against the pillar. Straight, upright wreaths, for flat-sided pillars, may be made either on rods of wood or of iron. I should, however, recommend iron for the purpose, as it costs but little, and it can be used year after year. As a foundation for wreaths of this kind, I should only employ dark green-leaved Holly, bunches of its berries being inserted at regular distances apart. Wreaths of this description are made in nearly the same way as garlands, except that, in the case of iron rods, fine reel wire is much better than twine for binding on the branchlets of Holly. Care should be taken, too, to see that they are made quite straight and even, and it is better to have them full than otherwise, as any superabundance can be cut out with a pair of scissors. Instead of working in the berries as you proceed, the best plan is, after the wreath is finished, to select the bunches of fruit of an even size, cutting off the stem above and below the bunch, and also the leaves—in fact, making it look like a round ball of berries without any stem. Then take a piece of binding-wire, slip the end in amongst the berries, and twist it round the stem to which they are attached, leaving two ends, each about 6 inches long, at the back; then take each of these bunches of berries thus mounted and tie them on the wreath with the ends of the wire, but the bunches of berries should not be fastened on till the last, as they get crushed and spoiled very quickly. These upright wreaths, as well as the garlands, can be easily kept fixed in their places by means of a strong piece of wire bound round the top and bottom of the pillar, working the ends into the wreath. The bases and capitals of all pillars look best finished off with a thick wreath; this can be made on a rope or on a bent iron rod, furnished with a hinge and also with a hook to fasten. Wreaths for the purpose can be made of no more effective shrub than the Variegated Golden Holly, not mixed with any other variety of evergreen, but used simply by itself.

ARCHES.—The decoration of arches follows naturally after that of the pillars as they often spring from the latter. A wreath of evergreens round the span looks well, and if the under portion of the span be flat, a band of scarlet or blue is very handsome. These bands should be made first of wood, the same width as the flat portion of the arch, and an inch or two longer than half the span, they should be then covered with scarlet or blue woollen stuff, and this may be prettily relieved by little stars formed of variegated Holly leaves (some of which can be obtained without any green whatever), with bunches of berries in the centre of each little star, tacked on at equal distances by means of a small nail or carpet tack. The leaves can be sewn together by means of a needle and thread to form the star, and the bunch of berries fastened to the leaves in the same way, but the whole must be fastened to the wood by means of a small nail. The reason of these slips of wood being cut longer than the actual length of half the span is that this plan obviates the necessity of using nails or other supports to keep them in their place, as they are simply bent in the act of being fixed; and when they meet at the top and spring into their position they are as firm as if held there by wires or nails. If these boards be covered with evergreens, they are tied on with twine, in just the same way as if on a rope for a garland. In these heavy wreaths the Gladwin can be worked in with good effect.

Ornamental Devices.—These look very effective along the front of galleries, or between windows, &c. Their shapes and forms are so varied that it would be impossible for me to enumerate them, so I shall leave the design to the taste of the decorator, and content myself with explaining the methods of construction. The foundations of these are always of perforated zinc, and the leaves are sewn on by means of a needle and thread, passed up and down through the holes in the zinc. The leaves of the Holly, Ivy, and Aucuba, are best for these devices; the only branchlets which can be employed, are those of the Yew, as they can be made to lie as flat as a leaf.

Texts.—Some are in favour of illuminated texts set in frames of evergreens; but I like to see the letters formed of the evergreens themselves, which, on a panel or background of white calico, or scarlet or blue bunting (on a stiff foundation), with the text formed of letters of Holly leaves, has a very charming effect. The letters should be first cut out in stiff brown paper, and then covered with the leaves, which should be sewn on. The reason the leaves of the Holly are selected is, that they are sharper in outline, and therefore cleaner cut letters can be made with them than with the leaves of any other plant. The frame, too, in which the text is set, looks best composed of branchlets of this shrub, made in the Oxford shape, on foundations of lath, and finished off at each corner where they cross with a large bunch of berries; on a scarlet foundation, letters made of the variegated Golden Holly look best; on a white ground the plain dark green variety, which also suits a blue ground; on the latter, they look best if the leaves are brushed over with a rather weak solution of gum, and are then dusted with glass dust from the glass works, which gives them the appearance of being frosted, or, after being well gummed, touched here and there with flour, which looks like snow. The capital letters should always have little bunches of berries sewn on them at regular intervals, and, when the latter are of the green-leaved variety, the capitals can be made of the golden or silver variety, according to taste. If, as is the case in some churches, the Commandments are written upon the walls in the chancel or inside the Communion rails, frames can be made of laths, the size of the panel, covered with evergreens, with Ferns at the corners, and this can be suspended by an invisible wire from a nail above, in front of the vestry, in such a way that anyone would suppose the words were set in the frame.

Windows.—These look well framed with evergreens; but the width of the frames must be regulated according to the size of the windows. The wooden uprights on which these are fastened must be kept in position by means of nails, as it would be unsafe to have them fixed in an insecure manner. Mixed evergreens, ornamented with the berries of the Arbutus or Gladwin, have an effective appearance. For windows, frames of this kind form sufficient decoration; but if they are situated in the east end, or chancel, the recesses at their bases, if deep, should be filled in with flowers. Little zinc pans, which can be used year after year, should be made to fit such recesses, as the damp necessary to keep the flowers fresh spoils the plaster. These little pans should be filled with Wood Moss, a bundle of which can be procured in Covent Garden, or at any florists' shop, for a penny; or, better still, in the woods, merely for the trouble of collecting it. It should be well washed and picked over, and then packed into the trays with the fresh tops uppermost, so as to form a green mat. Into this the stems of the flowers should be inserted; and only such as lie tolerably flat should be used for the purpose. They can be arranged to form any design or set pattern. Should the base of the evergreen frame, with which the window is surrounded, not fit properly, so as to shut out from view, as it should do, the edges of the zinc trays, an extra frame of small size should be made, and slipped in so as to fill up the vacant space.

The Communion Table.—On this some place bouquets, crosses, &c., of flowers, while others object to such decorations. Where used, flat bouquets (*i.e.*, such as are one-sided) and floral crosses, are best. The foundation of such bouquets should be a few branches of Yew, which form a good background against which to build the flowers. The foundation of the crosses should be laths or Hazel rods; on little branchlets of Yew should be fastened any flowers with short stems, a little damp Moss being bound in with each, to keep them fresh. This gives them an artificial length of stem, and the bouquet can be then built lightly against the foundation of Yew. The selection of the flowers must, of course, depend upon the supply that can be obtained; but nothing forms such a handsome centre to a bouquet of this form as a large Arum bloom. If Fern fronds be employed, only those that have been well hardened off should be used. For making crosses a good supply of Wood Moss should be at hand; this should then be bound on the wooden foundation, and into this the flowers are worked and embedded. One must also be guided in the selection of flowers by the dimensions of the cross. For large crosses blooms of Arums, Camellias, Poinsettias, and similar flowers are best, whilst for those of a smaller size Stephanotis, Azaleas, Fuchsias, Pelargoniums, &c. are best adapted. The outer edges can be formed either of a, narrow band of Moss, or a fringe of Fern fronds, but the former makes the outline clear and more distinct.

The Pulpit and Reading Desk.—These may be decorated with either evergreens or flowers, or both, if desired. Round the top a thick wreath of either looks pretty; if of evergreen, they should consist of variegated Hollies and Holly berries, made on a cord, as described for pillars; and if of flowers, they should be mounted on laths, as is done in the case of foundation for crosses. The outline of the panels can be well set off by a narrow beading running round them, and formed of small variegated Holly leaves sewn on tape wire. In the centre of the panels, little flat bouquets can be inserted, similar, in form, to those before described for the decoration of the Communion Table, or small crosses or monograms can be formed in Holly leaves, on foundations of wood or paper, and decorated with berries. In very small panels, little stars of leaves and berries can be inserted, similar to those for the decoration of coloured bands. Up the pillars which support the light wreaths, Holly and berries should be twined. The decoration suitable for the pulpit will be found equally well adapted for the decoration of the reading desk, and also for the font; but, upon the latter, I like to see as many flowers employed as possible. A narrow zinc trough, running round the top, will best hold the wreath of flowers by which it should be surrounded, and to arrange them in this way is not nearly so difficult as making a garland of them. All the small panels should have little flat bouquets in each, and garlands, &c., may be twined, where possible, with good effect. If there are other portions of churches which require decorating, and I have not alluded to them above, some of the ornaments which I have enumerated might be adopted for the purpose with good effect. As each different wreath, &c., of evergreens is finished it should be placed out in the open air to remain till it is required for fixing in the position it is to occupy in the church, as this tends to keep them fresh. The floral portions, which are made the day before Christmas Day, should be sprinkled with water and then placed in their intended positions, or else in some cool place till they are placed in the church on Christmas morning.

THE FLOWER GARDEN.

SOME HARDY WINTER FLOWERS.

Common Christmas Rose.

Purple Christmas Rose.

If there be a dull dreary month in the year it is that of December, when Nature may be said to rest and recruit her all but exhausted energies, and prepare for a fresh start in the floral race with the returning sunshine of the youthful year upon which she is so shortly to enter. But however dull and cheerless it may be, we cannot but look upon it as any other than a wise arrangement that there should be these breaks in the continuity of the floral year. They, as it were, sharpen the appetite, and increase the appreciative powers. Nor do I envy those so-called happy climes, where an everlasting summer holds its sway. The depth of the valley contributes in no small degree to the apparent height of the mountain; and so with us the winter's rest of Nature—which, possibly, we may have altogether forgotten—enables us to value fully the budding beauties of spring, the brighter glories of summer, and the beautiful, though hectic, flush that pervades all Nature in the autumn, betokening, as it does, even in its loveliness, both death and decay. I have alluded to a break in Flora's wreath, but does such really exist? I admit that the wreath becomes slender, yet, if we search well, there are some links to be found whereby its continuity may be preserved, and it is my object here to point out where those links may be found, each one of which has a value far beyond that of the brightest gems of summer—they are like oases in the desert, few and far between; but on that very account all the more precious. I have often been struck with the marked peculiarity that many of our Japanese and Chinese plants present, as regards their time of blooming, and so must many of my readers. Who, that has contemplated the bright golden blossoms of the Jasminum nudiflorum produced throughout December, January, and February, without any intermission beyond that occasioned by severe frost, but must have been struck by the strangely unseasonable time and method of its blooming. Again, the Chimonanthus, in its fragrant, large-flowered and other varieties, if they lack in brightness of colour, certainly acquire ample compensation in the delicious perfume their flowers possess—these may be reckoned as links in the December chain. Again, our more familiar Chrysanthemums are of similar origin, and I am sure none will deny their value, or the important place they claim in the floral wreath. Still further, we have Saxifraga Fortunei, a winter species amongst a host of spring-flowering congeners. Cydonia japonica and Forsythia viridissima are amongst our early spring flowers, and both claim an extreme Eastern origin. Is it that the Chinese have, with their horticultural skill, exercised for centuries, been enabled to influence them to such an extent that, as regards the period of their flowering, the plants have become moulded, as it were, to their whim and fancy; and that even when imported into this country they retain their foreign peculiarities of blooming intact? These questions have suggested themselves to me, and without attempting a reply, I leave it to your readers to form their own opinion, contenting myself by saying, that to China and Japan we are indebted for some of our very best December flowering plants—plants that appear to belong, florally speaking, to the darkest and dreariest months of the year—an inherited peculiarity for which, come how it may, we have reason to be thankful. I might adduce many more instances of this eastern peculiarity, but these will suffice. From southern Europe, whose flora, by the way, makes a strong impression on the south-western districts of Ireland, we have in the Arbutus and Laurustinus a brace of plants, whose value for winter-blooming it would be difficult to overrate, the more so as, associated with the beauty of the blossoms, there is, in brilliant rivalry, the beauty of the fruit; in the one case, we have pendent crimson globes, deep coloured, bright crimson or yellow, according to their degrees of ripeness, hanging beneath the lovely wax-like vasiform blossoms, which seem to unite, associated with the bright green leaves, in one tree a homogeneous mass of beauty, in which spring-time and harvest are, as it were, rolled into one; in the other, we have not unfrequently, along with the ample expanse of rosy-white umbellate blossoms, the deep metallic blue fruit of the previous season. This is especially marked in the more rigid form of the Laurustinus. We must not, however, claim a monopoly as regards the Old World, in the matter of winter-flowering shrubs. Have we not one of the most graceful plants, at least so far as decoration goes, in the male catkins of the Garrya elliptica, whose pendent spikes of bloom, simple as they may be, constitute an element of floral decoration that has few equals out of doors in the month of December. This is a contribution from the New World, and one that is doubly welcome, not only for its flowers, but for its evergreen and comparatively-speaking hardy character. Amongst fruits, the bright glistening scarlet berries of the Holly, and the pearl-drops which bedeck the Mistletoe, are so familiar, and so happy in their associations, that their mere mention will suffice; nor must we omit the Pyracantha, whose gorgeous and massive clusters of orange-coloured berries, if protected from the attacks of birds, will retain their beauty far into the New Year. Our old friend, the Aucuba, with which many are familiar under the title of the Variegated Laurel, after the introduction of the male variety, promised to be one of our most prolific and important berry-bearing plants; but though years have elapsed since then, it is rare to

The Great Christmas Rose (Helleborus niger maximus).

see a plant out of doors whose berries have been successfully fertilised; those who have seen them under glass, will at once admit the beautiful and effective appearance they present. Dwarfer in stature, and less general in cultivation, are the Pernettyas; in P. mucronata, when planted in a sheltered and sun-exposed position on the rockery, the deep crimson berries are freely produced, and contrast beautifully with the dark green foliage; in P. candida, a more recent introduction, and quite dwarf in habit, we have charming pearly-white fruit, suffused with a rosy tint, in happy association with which might be named the North American Gaultheria procumbens, whose highly-tinted leaves all but rival in colour the scarlet berries which peep from their clustered masses. If there is one flower more than another to which the title of "December's glory" might rightly be applied it is the Christmas Rose—the Helleborus niger—and most especially is it applicable to that form well named grandiflorus, and sometimes called the Scotch variety, from which, at Miss Hope's charming garden, at Wardie Lodge, I had the pleasure of plucking one of the first expanded blossoms a week or two since. The flowers are produced in twos or threes, on stout, erect stems, fully 8 inches long; they are 4 inches across at least, and, rising well above the soil, in addition to the natural protection afforded by the autumnal leaves lying on the surface of the ground, the broad expanded cups of lovely whiteness remain unsullied by even a speck of the closely adjacent soil. I ought to mention that the flowers do not all expand at one time, but follow each other in rotation. The foot-stalk is of a lovely marbled-pink colour, which colour, by the way, expands in gradually softening tints over the entire upper portion of the sepals, giving to the flower, as viewed externally, a charmingly delicate roseate hue that is never met with in the old species. Added to the colour and magnitude of the flowers, we have equally distinct characteristics as regards foliage. The leaves are double or treble the size of the old species, supported on long stout footstalks, and remarkable for the broad deflexed character of the lobes—so distinct, in fact, is the plant in every way, that I have no hesitation in saying, were it a new introduction, it would receive at the hands of our descriptive botanists a distinct specific title, and none could be more appropriate than Helleborus grandiflorus, omitting the niger altogether. When pure and unsullied there is no more lovely flower for the decoration of the hair than this Christmas Rose, and not one in a ballroom would ever suspect its humble origin. Though I have written thus enthusiastically about this variety I do not for one moment wish to disparage the old species itself, or its narrow-leaved form; though blooming a little later it still comes, and comes naturally, at a time when it has scarcely a rival. It is one of the few legitimate December flowering plants that is able to stand all sorts of weather. Helleborus atrorubens and purpurascens, in mild seasons or in sheltered localities, may be sometimes reckoned as December flowers, but their claim to this title, like those of others I shall have now to name hinges much upon the very uncertain conditions of season and weather. On the one hand, a mild protracted autumn extends the blooming period of some plants even to Christmas, and the very same conditions excite another set into premature activity; while a month or six weeks of frost and snow, which we in the north, at least, sometimes experience, suspends active life altogether, and, when this occurs, you may rely upon it that the first comers of the new year will have much the advantage over the latest blooming varieties of that which has passed away. Thus our December flowers naturally group themselves accordingly—as mementos of the past on the one hand, and as hopeful harbingers of the future on the other. Amongst the former we have the tall Aster grandiflorus and the dwarf Asters Reevesi and versicolor; latest of all, the Michaelmas Daisies, still gay after their respective fashions. The ever-flowering Vittadenia trilobata—lovely and loveable with its simple Daisy-like flowers—recently referred by botanists to the old genus Erigeron, from which, in my humble opinion, it is perfectly distinct; the Rock Speedwell (Veronica rupestris), whose dense dwarf tufts are rarely seen undecorated by a few spikes of its deep amethyst-blue flowers. The summer-blooming Gentiana acaulis, rich in its cobalt tint, under favourable conditions, not unfrequently bids an adieu to the parting year, and makes, so to speak, an acquaintance with his vernal relation G. verna, whose flowers, if smaller, are more intensely blue. Somewhat similarly related are the Cyclamens, the late blooming C. europæum having scarcely cast its flowers ere it is succeeded by the small bright crimson blooms of C. Coum; more appropriate and lovely plants for a sunny nook at the foot of a rockery—their pretty mottled leaves rising in overlapping masses above the surface of the Grass—cannot, it will readily be admitted, be found. The Japanese Honeysuckle, Lonicera japonica, when allowed to ramble unrestrainedly, not unfrequently yields a few sweet-scented blooms even thus late in the season, sufficient to render it worthy of mention as one of our December flowers. Too often under the restricted conditions of wall culture, where we generally meet with this plant, its autumnal display is sacrificed to neatness and tidiness as regards the appearance of the conservative wall. Under the same conditions, we sometimes meet with Clematis cirrhosa, its blooms suffering from a similarly restrictive policy. Where free development is allowed, such as is possible on a sunny slope formed of old roots, among which these creepers will find ample support, not only does their true autumn-blooming character become perfected, but the possibility of an addendum of winter flowers is also secured. Schizostylis coccinea, an Iridaceous plant of great beauty, from the Cape, when well managed produces its flowers throughout the whole month. They are borne on slender stems about 12 inches high, have the aspect of a Gladiolus, and are bright crimson in colour; the plant is perfectly hardy. Why then do we so often find it represented by a large patch of grassy foliage, with possibly only a solitary flower-spike; the reason is, that amid the myriads of offsets it produces, none of them come to maturity. Were the tuft divided in spring, and the strongest planted separately on the sunny south wall border of a garden, 6 inches apart in the row, in light soil, and a little care and attention given, the months of November and December would find each individual tuft producing two or three spikes of lovely flowers, that remind one of the peculiar tint of crimson we have in the Linum grandiflorum, alike valuable for cutting as for the general decoration of the garden. When thus planted, in the event of a severe frost setting in, a moveable frame might readily be placed over them for protection. Mentioning the frame reminds me that there is a great similarity between the culture I have recommended for this plant, and that at present adopted for winter-blooming Violets, whose right to rank amongst the sweetest of our December flowers no one will deny. Amongst the Tritomas we have some of the less highly-coloured varieties that are strongly endowed with winter-blooming proclivities. This arises from the influence of the old T. sarmentosa (a real winter bloomer, which I regret

Lonicera fragrantissima.

to say I have now lost) upon them, an influence under which, if the brilliancy of colour has degenerated, they have gained in a large extension of their blooming season, and it is really wonderful to see how the thick fleshy flower-stems, after lying prone on the ground for a few days during a sharp frost, will rise again uninjured. The Primulas, both double and single, in the Primrose, as well as in the Polyanthus form, give us a few blooms in November and December. Nor is it unusual to see the spring time anticipated, as it were, by scattered flowers here and there on our Alpine Auriculas. This is more especially the case with seedlings which have been planted out in early spring. These autumn flowers appear to act as a sort of safety-valve, whereby the plants are enabled to throw off their superabundant vigour. The winter-flowering Violas or Pansies were, in olden time, few and far between; but the spring decoration of flower gardens and their admirable adaptability for that purpose has roused the hybridiser into activity, and they are now more numerous. The hardiness and ever-blooming nature of the old V. cornuta has caused it to be selected for the basis of their operations, and the result has been an ample harvest of decorative material. These, however, belong to the domain of the florist, on whose preserves I do not purpose trespassing. The white, crimson, and intermediate forms of the double Daisy, including, as well, those with golden-mottled leaves, often anticipate their spring glory by a few mid-winter blooms, sufficient to claim a recognition at our hands. In favourable localities, amongst the advanced guards of spring, we may find the Winter Aconite (Eranthis hyemalis) peering out from its sheltered home beneath the leaves, and giving a gladsome welcome to the Christmas morn. So also the Bulbocodium vernum, whose similarity of bloom, both in style and colour, at once attests its close relationship to the Autumn Crocuses, or Meadow Saffrons, as they are called. The Gladwin (Iris fœtidissima), long known to lovers of hardy flowers as a bright-fruited native plant, has lately become popular in Covent Garden, where piles of its curious fruit may now be seen. Amongst trees I may mention the Japanese Witch Hazel (Corylopsis spicata), whose large-flowered pendent catkins are freely produced fully two months in advance of our common Hazel, and, as will be at once seen on reference to the figure, this plant possesses such elements of beauty as to lead one to wish for its more general cultivation. I had almost forgotten my especial favourite, the fragrant Colt's-foot (Tussilago fragrans), or, as it is sometimes called, the Winter Heliotrope, a very happy name, originating in its delicious perfume, which appears to combine those of the Heliotrope and the Hawthorn, produced by the most modest and unpretentious of grey flowers. In growth it is a vagabond, but is well worthy of a good corner in some plantation, where it may gratify its rambling propensities unrestrained, as, under those conditions, it produces its flowers in greatest abundance. I have purposely omitted here many plants which, in the extreme south of England and Ireland, may be found in bloom in December; we must look upon these localities as exceptionally favoured. I am fully aware that there are places where material might be found to treble the list I have given; but, for one person that rejoices in such happy conditions, there are ten who have to battle with Nature under more disadvantageous circumstances, and to such I must be considered as addressing myself. I trust I may be found to have fairly established the claim for dull December with which I started—that even it can boast of its Christmas Rose of greatest beauty, and can, and does, contribute at least a few gems well worthy of a place in Flora's diadem.

Winter Aster.

Jas. C. Niven.

Botanic Gardens, Hull.

MY HARDY FLOWERS.

By Rev. H. T. ELLACOMBE, Clyst St. George, Topsham.

I rejoice to see a re-awakening of interest in these charming subjects, of which I believe I am one of the oldest admirers and cultivators now living. In the cultivation of hardy flowers you may have a round of enjoyment all through the year—from the early yellow Aconite and Sternbergia lutea or Amaryllis lutea—the Lily of the Field of Scripture—to the late autumnal Crocus and Winter Hellebore. In this department, a gentleman should be his own gardener, leaving the kitchen gardens and glass-houses, if he has any, to those he employs; but, if he wishes to keep his pet varieties, he must not allow careless or ignorant labourers to touch the beds or borders, excepting under his own sharp eye; for, if he does, damage is sure to be the result, owing to their not having the love for many a plant to which, from various associations, he may be dearly attached, from being the gift, perhaps, of departed friends, or from the fact that they are pets of beloved relations, or of his own finding. Besides, there is nothing like a love for such plants, and frequent exchanges, for engendering and maintaining lasting friendships; for, let it not be forgotten, if you wish to keep a succession of varieties, you must give them away as often as you can do so, and then—in case of losses, which are sure to occur—you will have a chance of recovering them. And what a pleasure it is to welcome back to your garden a long-lost favourite! My own experience extends over sixty years—I might say over a far longer period—for, as a child, I had my collection; and, with a short interregnum, arising from the transplanting of myself and family from one of the finest spots in England for the cultivation of herbaceous plants (a rich deep loam on a gravelly bottom) to a cold stiff soil, and more serious matters requiring my attention, my gardening pursuits for a time fell into abeyance, and the more so as most of my old friends were no more. But now, as an amusement for my declining years, though most of my early friends are gone, they are brought daily to my recollection by the plants I still possess by means of kind contribution. Allow me to enumerate the following among those who were frequent contributors to my collection, names which must be familiar to many of your readers, excepting the young ones. The ladies first, of course—Lady Acland and Mrs. Marryatt; next, as I remember them, Robert Sweet, Haworth, W. Herbert, Kent, Anderson, Murray of Glasgow, Loddiges, Miller, Garraway and Mayes, Lee, Otto of Berlin, Hunneman, Lyons, Baxter of Oxford, Young and Penny of Epsom, R. Barclay, Mackay, Whitley, J. Young of Taunton, Maund, Pince, Falkner, Taunton (who used to garden by moonlight), Curtis, Henslow, Silvestar, Lindley, Butt, Campbell, Cunningham, Bree, Mirabel of Paris, and good Philip Frost (still un-nipped), but all my other kind friends are gone! No wonder that by the generous and frequent gifts and exchanges of so many kind and valued friends—all honour and thanks to their memory—before we enjoyed the penny and parcels post, I was enabled to leave at Bitton, in 1858, over 3,000 distinct species of hardy plants, all planted by my own hands, under name and number, including bulbs, trees, shrubs, and aquatics, a moiety of which I removed to this more genial climate, but ungenial soil, of my present habitat. As for the present flourishing state of the Bitton Garden, more rich in varieties than I left it, you have written most gratifyingly in your number for April 26, 1873.

DRAWBACKS OF GEOMETRICAL GARDENING.

This, with its terraces, vases, steps, and white stone or terra cotta edgings, still occupies a prominent place in English gardens, generally immediately in front of the principal windows, or at least somewhere near the mansion. Notwithstanding this, however, this style of gardening has many drawbacks, especially during a season like the past, when, in place of blue sky and bright sunshine—conditions necessary to show off this style of decoration to advantage—we have had black lowering clouds and driving rain, almost without intermission. The system, though not wholly without merit, is too artificial in character to make any lasting impression. During summer, it is, in fact, a gigantic bouquet, enclosed within stone edgings, which serve as a substitute for lace-paper, and one instinctively turns to the fresh green turf, and the ever-welcome aspect of tree and shrub life for lasting enjoyment. Some of the worst features belonging to the Italian style are that the first and great expense of construction is by no means the greatest, for no sooner is such a garden formed, and its vases and other adjuncts filled, than the stone mason is almost as constantly required as the gardener, in order that the flaws and blemishes, that exposure to our climate occasions, may be made good. Here, on the east coast, the strong sea air soon destroys balustrades and copings, and even obliterates the finest work of the stone carver; while terra cotta edgings are constantly being cracked by frost, and require frequent cleaning to be at all presentable. The system of filling in patterns of scroll work in Box with variously-coloured gravels, is a never-ending source of labour, which, if expended on less artificial objects might produce far better results. In fact, no branch of gardening entails so much labour as Italian gardens, when carried out on a large scale. But the question of labour and expense would, in making places, be of minor importance, if gardening in the true sense of the term were not made subservient to the stone-mason's art. For the plants employed must be almost as stiff as the stone edgings themselves. No gracefully-spreading foliage, that charm of a garden, is admissible here. On the contrary, such plants as are suitable for a garden of this kind, must be pegged and twisted to fit the design, and of colours either in leaf or flower to suit the picture. No one bed, too, can be altered without spoiling the whole, which is not the case when a free style of planting is adopted. Certainly, one may put scarlet next year, where white or yellow are this, and *vice versâ;* but to a casual observer, the picture is exactly the same as before. Then what a wreck does the first frost occasion! To-day it seems as if it were mid-summer, and to-morrow mid-winter; while, were a more free and graceful style of decoration adopted, one in which hardy trees and shrubs, and broad sweeps of green turf could be seen, the seasons would imperceptibly merge into each other. The loss of bright flowers in autumn would be compensated for by the brilliancy of the changing foliage and bright fruit-bearing trees. Nor is winter dreary, even when trees and shrubs are glistening with hoar frost or bending under a load of snow, provided they are allowed to assume their natural forms. I am no advocate for diminishing the care now bestowed upon our dressed grounds, or for converting them into thickets or wildernesses, but there can be little doubt that the amount of labour now expended on Italian gardens, and what are termed bedding plants, is out of all proportion to their merits. Hardy trees and shrubs, herbaceous, bulbous, and other plants, skilfully disposed, are capable of producing the best results. Villages of glass would not, in that case, be required as they are now for the production of plants for summer decoration, and the time expended on their propagation might, if economised and rightly directed, improve our fruit culture; while, as regards kitchen gardens, the labour necessary for their proper cultivation need not be so often withdrawn as it now is, and that generally at seasons of the year when it can be ill spared.

Henham. James Groom.

Standard Heliotropes.—I have these on 3 and 4 feet stems, with large heads. By shaking off the old soil in spring, and re-potting in fresh loam and rotten manure, at the same time closely pruning the head, they make fine plants in a few weeks, and bloom for several months if occasionally treated with liquid manure. Probably there are but few of the varieties suited for this purpose, the chief aim of the hybridiser being dwarfness; mine are the old Heliotropium peruvianum. I know of few things more enjoyable to the sense of smell than a walk between a double row of standard Heliotropes about one's own height in full bloom.—J. M.

Select Pompone Chrysanthemums.—In your last issue (see p. 486) there is an excellent selection of six kinds of Pompone Chrysanthemums to which I should like to add a few varieties which I have grown this year. Some of them are of the Anemone-flowered class, namely Miss Nightingale, a kind with flowers blush and white; Calliope, ruby-red; Mr. Astie, golden-yellow; and Dick Turpin, magenta, with light orange centre. A newer variety of Pompone, named Maroon Model has likewise proved first-rate in the shape of the flowers; it is of the colour of the old favourite kind called Bob. Mr. Wyness is another good variety, with rose and lilac flowers.—William Tillery, *Welbeck.*

Culture of the American Pitcher Plant.—I have brought with me from Canada a fine plant of Sarracenia, which was growing in a swamp not far from London, a little north of Lake Ontario. I want to know how I ought to treat it—whether to plant it out in my London back garden, or take it in for the winter—and especially how to deal with it as regards water. Will some one kindly tell me?—J. M. [The changes of a London winter would probably injure it, as it is usually protected by a bed of snow in winter. If you keep it out of doors the best place is on the top of the house in a level exposed place, the pot to be kept standing in a pan of water. It would live through the winter well enough indoors placed near a window.]

Carpet and Butterfly Beds.—A writer in the "Saturday Review" has been making a little fun of the new carpet and butterfly bedding. Some "dowagers are described" as discussing "the flower beds and the arrangements of the colours. They are delighted with a gaudy ribbon-border, into which has been introduced a coat of arms in scarlet Geraniums and Beetroot. They agree that we have at last arrived at high mediæval art in gardening. One of them says she is going to have a bed made to represent a tortoiseshell cat with her kittens around her." We have of late been obliged to give some space to this latest fancy in gardening as it is our duty to record its history, but it has been with a feeling of disgust at the whole business of carpets, butterflies, and similar devices.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

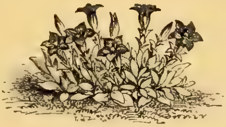
Orlaya (Caucalis) grandiflora.—This pretty Umbellifer is common, I believe, in southern Europe, but I have never seen it in an English garden. It has large heads of creamy-white flowers, some of which have the same peculiarity as the Hydrangea and Viburnum Opulus, being double or treble the size of the rest.—H. Harpur Crewe, *The Rectory, Drayton-Beauchamp, Tring.*

Tritonia aurea Out of Doors.—I would recommend everyone who has a garden, however small, to grow this lovely bulbous plant. It may be planted out towards the end of April, or early in May, and in rich light loam. In autumn, when cut down by frost, the bulbs may be dug up, and stowed away in pots of sand, out of the reach of frost until planting time returns.—J. Whittaker, *Crewe Hall.*

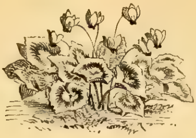
Digging Flower Beds.—This is such a simple operation that one might suppose it impossible to make a mistake in doing it, yet I have frequently observed flower beds that looked considerably the worse for it, the prevailing error being the piling of the soil up in a pyramid towards the centre of the bed, and leaving a deep gully round the edge. When beds are gradually rounded, and the soil just clear of the edging, there is nothing objectionable in the winter aspect of even bare beds.—J. Groom.

Increasing Pachyphytum bracteosum.—This is one of the most useful of all succulent plants, and, at this season, a few words as to its propagation may be useful. Strip off its lower or best developed leaves, and lay them for a day or two in the sun, after which they may be inserted in a well-drained cutting pot, or shallow pan, in a sandy compost, and well watered, to settle the sand firmly around them; after that, they should be set on a shelf near the glass, where they will root freely in a week or two, and make fine little plants for planting out, or growing in pots next summer.—B.

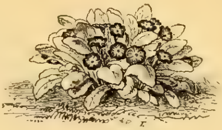
The Double-flowered Myrtle.—Everybody acquainted with flowers knows the lovely double-flowered Myrtle, which is a very desirable plant, both for bouquet work and for decorative purposes generally. If a neat bushy plant looks pretty when in bloom, the beauty of it is much enhanced if trained as a standard, with a stem about 2 feet high. However, as the double-flowered Myrtle grows rather slowly, it is a good plan to graft it on the common broad-leaved kind (Myrtus communis), of which rooted cuttings, when planted out in suitable soil, make in one season plants fit to be grafted at the above-mentioned height.—G.



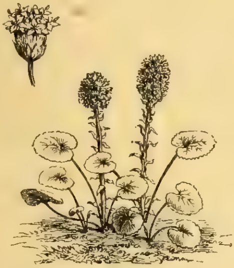
Gentiana acaulis.



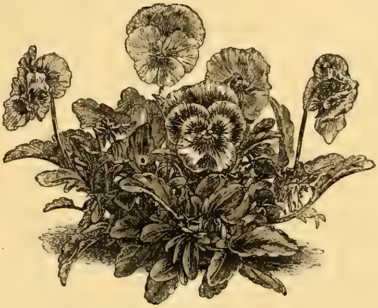
Winter Cyclamen.



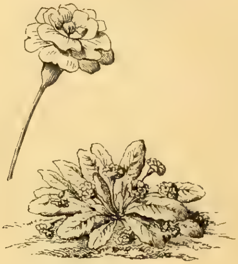
Early Primrose.



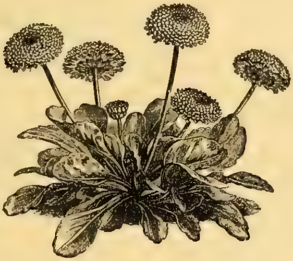
Winter Heliotrope (Tussilago fragrans).



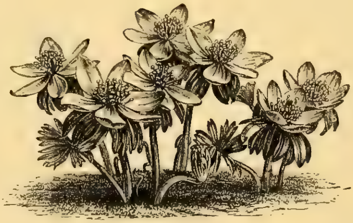
Winter Heartsease.



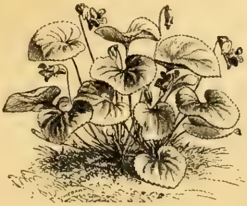
Double Primrose.



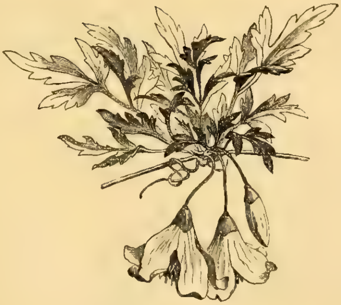
Double Daisy.



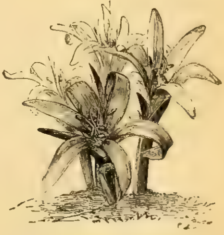
Winter Aconite.



Viola odorata.



Winter Clematis (C. cirrhosa).



Bulbocodium vernum.

A GROUP OF HARDY WINTER FLOWERS. (See p. 497.)

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

Forced Flowers.—There is no season of the year wherein flowers are so deservedly prized as during the ensuing three months, when, if we except the Christmas Rose, the naked-flowered Jasmine, Laurustinus, and Snowdrops, there is little out of doors, in the way of flowers, to interest us. In glass structures, that are kept at an ordinary greenhouse temperature, Camellias, Primulas, Cyclamens, Mignonette, early sown Cinerarias, and similar plants can be had in blossom; but, in the case of amateurs who require a good and regular supply, a house wherein a night temperature of from 60° to 65° is maintained, is indispensable. It is not necessary that such a house should be either very large or costly; but in order to be able to reap full benefit from it, as regards the production of winter flowers, it should be divided by a glass partition, so as to keep one part cooler than the other. By this simple arrangement, there is no necessity for keeping some plants warmer than they require, and others cooler than they can well bear. In the coolest division, where a night temperature of from 50° to 55° can be kept up, bulbs, such as Hyacinths, Narcissus, and Early Van Thol Tulips, may be brought on into flower much more satisfactorily than in a stronger heat. When such bulbs are removed from the covering of ashes, or similar material, under which they have been placed, until the pots were well filled with roots, they must not at first be subjected to full light, or the advancing leaves will receive a check that will stop all further progress, except in a deformed state. They must be gradually exposed to light by being placed on the floor, under a plant-stage, or in some similar situation, where they will, for a week or ten days, receive partial light, before they are put in heat; or a small flower-pot inverted over them will answer the same purpose. The light admitted through the hole in the bottom will gradually impart the wonted green colour to the expanding leaves, after which they cannot well have too much light. A few good roots of Solomon's Seal may be put into 8-inch pots, and placed in the above temperature, also some Lilies of the Valley, and that very best of all shrubs for forcing, Deutzia gracilis. If plants of this exist that have been forced before, and that have made their growth afterwards in a little warmth, they will flower earlier than they otherwise would do, and with less application of heat. The double-flowered Plum also forces well under similar treatment to that of the Deutzia; both will succeed better in the cooler stove temperature above-mentioned, than if subjected to more heat, and the same remark also applies to Azaleas. Of these the old White and Fielder's White are well adapted for forcing, as they naturally bloom earlier than the higher coloured sorts. The double Azaleas, A. Borsig, Reine de Portugal, and Flag of Truce last in a cut state much longer than the single varieties, and, therefore, deserve to be generally cultivated by all who require forced flowers. In bringing all such plants into bloom in heat, the atmosphere should not be kept too moist, just enough water being used to maintain it in a genial healthy condition; neither should the plants be syringed over-head too often; once a-day, and that in the afternoon, is enough, for if too moist or hot, the flowers of all forced plants will not last nearly so long as those brought on slower. The plants should also from the time they are placed in heat, be as near the light as possible. By this means the colour and substance of the flowers will be much improved, and, if required for cutting, will keep much better. In the warmer stove should be placed successional plants of Poinsettia, Euphorbia jacquiniæflora, and E. splendens, Plumbago rosea, Sericographis Ghiesbreghtii, Gesneria exoniensis, and G. zebrina. The two last, when well managed, are amongst the best winter-flowering plants grown; all the above are suitable for cultivation in small houses, where larger-growing plants could not be so well accommodated.

Winter Cucumbers.—At the warmest end of the house, besides the subjects just named, a plant or two, if desired, of winter Cucumbers may be grown, without much interfering with the other occupants of the house. These, if sown and subsequently treated as advised early in the autumn, will now have attained considerable size, and should be encouraged by keeping up a regular temperature—at nights especially it should not be allowed to drop much below 65°. If Cucumbers are desired at the time when they are scarce, the fruit should not be allowed to set before the latter part of the present month. By this means the plants, if well attended to, will gain additional strength. Do not give them too much water at the root; their requirements in this respect will, however, be proportionate to the progress they make in growth, which will not be more than a fourth of what they would attain during the summer season. Neither will they require much syringing overhead during the short days of winter, as it has a tendency to make the leaves weak and tender, and when syringed during the dull season it should be done gently, for if the syringe is used with much force, the foliage is sure to be injured. The soil required for adding to the surface of the space which the roots occupy, as these make their appearance through it, should contain a good portion of leaf mould; this will encourage root formation better than such as is of a more solid description. Do not allow a single superfluous shoot to grow, as all that have not sufficient room in which to expose their leaves fully to the light tend to weaken the plants. Cucumbers are not the easiest of plants to grow successfully in winter, yet I have known many amateurs to persevere with them until they have succeeded in growing them all the year round.

Roses on the Briar.—Roses when worked on the Briar stock, always throw up more or less suckers—especially when they have stood for several years without being moved. In such cases, it often becomes necessary to take them up and re-plant them. Where such work is required, it should be done at once, as, if carried out now, it will not interfere with their flowering during the ensuing season so much as it would if delayed until later in the winter. They should be taken up, as far as possible, with all their roots intact, and all the suckers and strong underground shoots that produce them should be cut clean away. These are easily distinguished from the roots. The plants should then be laid in anywhere out of the way, covering the roots with soil, so as to keep them from frost or drying winds. Take advantage of their removal to dig the ground on which they stood well over, and to work into it a good dressing of manure, getting it deep down, which was not possible when it was occupied. In addition to this, if the land is not naturally of a description suited to the requirements of Roses, it may be much improved by the introduction of some fresh loam. This is especially necessary in light ground, to which the soil added should be of a strong, adhesive character. After the preparation is completed, the plants should be at once replaced, making the soil firm about their roots, and securing them in their positions by means of stout stakes. In this, as in all planting of Roses, care should be taken not to plant too deeply. This is an error that amateurs often fall into, and it is fatal to success, especially when they are grown on the Briar, which is naturally a surface-rooting plant. Anyone who has not had much experience as to the nature of the common Briar, cannot do better than become acquainted with its mode of growth, by taking up a few plants where they have established themselves naturally. They will then find that the whole of the roots run horizontally only a very few inches under the surface. Roses thus removed, as in all other cases of recent planting, should at once have the surface over their roots mulched with 3 or 4 inches of manure, in a not more than half-rotten state, so as to preserve them from being frozen.

Rhubarb.—Where Rhubarb is required early some roots should at once be placed in a gentle heat. They may be forced like Seakale where they grow, except that much deeper pots must be used; but, in the case of Rhubarb, as well as in that of Seakale, it is preferable to take up the roots and place them in heat. Nothing is better than a slight bed of leaves on which to put them protected by a deep temporary frame or box, covered up so as to keep in the warmth and exclude light. The roots should have a few inches of soil placed under and also between them. For the first produce some early kind, such as Linnæus, Tobolsk, or Prince Albert, should be selected, as these will come in much sooner than the later sorts. If a few roots of the Victoria, which is a later kind, but large and very productive, are at the same time put under the stage in a greenhouse, or in any similar out-of-the-way place that is kept a little warmer than the external temperature, they will come on in succession; but, in such a situation, they should be covered up to exclude light, and, in all cases, the soil that is placed round the roots should be watered as required so as to keep it a little moist.

The Flower Garden and Pleasure Grounds.

If dressed grounds are comparatively destitute of attraction in winter they ought at least to possess clean, firm, and comfortable walks, which can only be secured by frequently sweeping and rolling them. The common Oak, and also some of the more ornamental varieties of the Quercus family, usually retain a portion of their foliage long after most other deciduous trees have shed their leaves, and their continuous dropping, renders the frequent sweeping of lawns and walks in their vicinity necessary. On light dry soils the Pampas Grass is generally found to be perfectly hardy; but in less favoured situations, and during very severe winters, it sometimes gets severely injured, if not killed. It is, therefore, advisable to slightly protect it with light littery manure placed round the collars of the plants, and a few Laurel or Spruce boughs should also be placed round them. This should, however, be done neatly, and the litter should be secured in such a way that it will not be blown about by the wind. Any other plants on the herbaceous border or elsewhere, of the hardiness of which there may be a doubt, should likewise now have some slight protection. Tulip beds, too, may be furnished with a covering of old tan or leaf soil. Hardy Alpine plants, Pinks, Carnations, Pansies, and similar plants are not unlikely at this season to become loose in the soil, through the action of the wind; as soon, therefore, as the soil is tolerably dry, they should be made firm. Auriculas and other choice Alpine plants in pits or frames should have abundance of air whenever the weather is mild, and the same treatment should be followed in the case of such bedding plants as the shrubby Calceolarias, Königa maritima, Leucophyta Brownei, &c., the latter is an elegant silvery-foliaged plant, suitable for edgings to flower beds, carpet-beddings, &c., and it is nearly, if not quite, hardy. Pelargoniums, Petunias, tall Ageratums, Verbenas, &c., when fairly rooted, will merely require the exclusion of frost from the structures in which they are being wintered, and abundance of air should always be given them whenever the weather is favourable, in order to drive off damp. In the case, however, of such plants as the Alternantheras, Coleuses, Iresines, Heliotropes, and the useful dwarf variety of Ageratum, which is found to be less hardy than the tall-growing variety, a somewhat higher temperature is required, in which to winter them with safety—say one not under 50° or 55°—and a position as near the glass as possible. Bedding plants of all kinds in unheated structures will require very little water for some time to come, but when this is found to be really required it should be supplied early on fine days, when air may be freely admitted if possible in order to dry the foliage before nightfall—P. Grieve, *Culford, Bury St. Edmunds.*

Orchids.

December and January are good months in which to look over Orchids, in order to clear them of thrips and scale, which are more easily destroyed than in spring or summer. Dust the centres of Aërides, Saccolabiums, Angræcums, Phalænopsis, Vandas, and similar plants, with Pooley's tobacco powder, which will prevent them from being attacked, and the powder will not injure the plants. Cockroaches should be looked after, for, as more fire-heat is used they will become troublesome. By spending an hour in destroying full-grown ones every evening their numbers will soon be lessened. Plants growing freely in the East Indian-house should occupy the warmest part of it; they should have a temperature of at least 60° by night and 70° by day. Phalænopsis will grow and flower freely in these temperatures during the two following months, that is, provided they have sufficient moisture to keep Sphagnum Moss in a growing state. With Cattleyas great care will be needed as regards watering; let them have just sufficient to keep them from shrivelling, and give them a temperature of 55° at night, and 60° during the daytime. Lycaste Skinneri will have completed its growth, and should only have sufficient water to keep the bulbs plump. Cœlogyne cristata will now be producing flower-spikes, and should, like the Lycaste, only have sufficient water to keep the bulbs plump; but the plants should be elevated as near to the glass as can be done with safety, and, when in flower, they should have a dry atmosphere, as damp will cause the blooms to spot; a temperature of 50° at night and 55° during the daytime will be sufficient. Epidendrum vitellinum should be placed at the cool end of the Cattleya-house to grow, and should receive abundance of water at the root, as should also Cypripedium barbatum, C. Hookerii, C. Lowii, and Uropedium Lindenii. Pleiones should be potted before the young growths begin to push roots, or they might get injured; they grow freely in equal parts of peat, sand, and manure from a spent Mushroom bed, in pots or pans three parts filled with drainage. Dendrobiums that have started should be placed at the warmest end of the house to grow, and they should be watered sparingly till they have considerably advanced in growth. Odontoglossum Bluntii will be growing freely now, and should have a moist temperature of 45° at night, and 50° during the daytime. At no time should they be allowed to become dry at the roots. Odontoglossum Pescatorei, now pushing flower-spikes should have the driest end of the house in which to open its flowers, in order that they may not become spotted through damp. Oncidium macranthum, which will be growing freely, should, about this time of the year, receive abundance of water at the root. As Disa grandiflora advances in growth, its leaves should receive a sprinkling of water twice a day.—E. Culley.

Indoor Fruit Department.

Vines.—The earliest started pot Vines should now be considerably advanced in growth; and, when the shoots are from 2 to 3 inches long, the canes should be tied into the position in which they are to fruit. If the pots have to be removed from the position where they have been plunged, they should, if possible, be placed where they can be subjected to a moderate heat; and if the bottom of the pot can be set on the flow pipes in the house in which they are to grow, all the better. The practice of setting the pots along the bottom of a damp, and often cold, back-wall can result in nothing but ruin. When they have to be fruited in such a position, the pots should be raised well off the ground, so as to place them more in the general heat of the house; and it must be borne in mind that more water is required at the roots after the plants have been taken out of the plunging material. Every sunny day, the opportunity should be taken of getting the temperature well up; and the atmosphere should be kept moist at all times. As hard firing has now frequently to be resorted to, evaporating troughs should be placed in the houses where these Vines are, and should be kept constantly filled, to induce an atmosphere which will be favourable to the young growth throughout the night. Late Vines have now, for the most part, lost their foliage; and, therefore, the fruit which may still be hanging on the plants is not so liable to decay now as it was some time ago. The air, however, about them should still be kept as dry as circumstances will permit. The temperature should never be permitted to exceed 40° at any time with fire-heat, or the berries are likely to shrivel, and lose their plump appearance. Muscats are amongst the first to shrink, probably owing to their often being not quite so well-matured as some other varieties. The bunches which contract most should, in all cases, be used first. Fire-heat should not be employed for their preservation, unless it be to exclude frost or at times expel damp.

Pines.—The earliest batch of Queens must be started now to fruit during the early part of May. If the whole of those first rested are too numerous to begin with, those most likely to fruit first should be selected. This state is generally indicated by the leaves being widely spread out from the centre, and the stem around which the leaves cling being very robust; plants of this description may usually be depended on. Those selected should be taken from where they are at present and have their leaves tied up, previous to the removal of a few of the lowermost ones, and all the loose soil down to the roots. This exposes part of the stem, and it will be seen that many small roots will be emitted from it. Against these a quantity of fresh loam and bones should be firmly pressed, leaving not less than 1 inch empty below the rim of the pot, that watering may be easily effected. The young roots soon take possession of the new material, and the plants derive the benefit of it when they come into fruit. After adding a quantity of fresh plunging matter, and mixing it well up with the old, the plants should be plunged 2 or 3 feet apart, and the leaves let down into the position which they occupied previous to being tied up. It will be a few days until the heat rises about the pots, and until this time no water should be given at the root. As soon as the heat rises to 80°, give a thorough watering with water heated to 85°. Do not let the heat ascend above 80° for the first fortnight. The air heat should be about 65° at night and 70° throughout the day, with fire-heat, and 80° with that of the sun. The atmosphere must constantly be kept moist; on sunny days they may be lightly sprinkled overhead with the syringe early in the afternoon. Do not open any of the ventilators until the temperature rises to 85°.—J. Muir.

Hardy Fruit.

The aspect of the fruit garden at the present moment is a dreary one. The leaves are all down, and, as yet, not raked up; weeds are peeping through them, and altogether a very untidy appearance is the result; but very shortly all will be cleared away, some of the trees pruned and tied, and otherwise made ready for another season's fruiting. All such work should be got off hand as soon as possible, not only for the sake of having the place tidy, but because the trees are better for early pruning and dressing; moreover, a busier time is approaching, and all such work, if not done betimes, is apt to be carelessly done. When the weather is such that pruning, tying, and nailing cannot be done, digging, trenching, draining, or preparing composts for planting may be performed, for it is almost impossible to prune or nail effectually with hands and feet benumbed. If frost sets in, and none of the above works can be done, there are others equally important, such as clearing out the manure-heap, and thickly mulching all fruit trees for which it can be spared; the half-rotten manure will do for this purpose, that most decayed being wheeled on to a quarter where it is to be dug in. All prunings and vegetable refuse, the ashes of which make a valuable manure for several kinds of fruit, especially for Peaches and Grape Vines, may also be burned. Labels should also be prepared, and all trees that require it be re-labelled; those fresh from the nurseries should always be attended to in this respect previous to planting, for, as frequently happens, the parchment label gets torn off or defaced, and the name is thus lost, much to the annoyance of the owner; stakes of various sizes may also be prepared for training trees of different shapes.—W. W.

Forced Vegetables.

Asparagus forcing will be practised generally now. Where there are the necessary means to keep up successions, Asparagus forcing is a simple affair, but where early vegetable forcing cannot have the attention which it requires, it is unsatisfactory and profitless. Asparagus heads now above the soil should have plenty of air during mild weather, and even when it is frosty, sufficient warmth should be provided. Allow a little air to be admitted, and where fermenting material is the chief source of heat, a quantity should always be ready mixed and sweetened by turning, so that beds cooling down may be renewed without delay. This applies to all vegetables forced by means of fermenting material, of which a great variety is used, but a mixture of stable manure and Beech or Oak leaves, supplies an even and more lasting warmth than most other substances. Blanching Asparagus consists in keeping the heads dark and close. Seakale and Rhubarb require the same attention as Asparagus, especially when the weather is uncertain. A bed of Short Horn Carrots may now be sown, using well-prepared manure, which will not heat violently. A bottom-heat of 66° will be sufficient, and the soil, which should be of a sandy texture, should be placed over the bed to the depth of 6 inches. Sow in rows 6 inches apart, and between the Carrots sow Early Frame, French Breakfast, or Short-top Radishes, which will form a useful addition to the forced crops. Give plenty of air to Radishes growing by themselves in frames and pots. When the tops are allowed to become drawn or weakly, from want of light and air, the roots suffer in proportion. Potatoes for an early crop may be placed on pieces of turf, Moss, or soft mould, and kept in a temperature of 45° or 50°., until they have sprouted and are ready for planting. Those which have started should be kept cool, and should have plenty of light, till fit to plant in the pits or frames, when little warmth is wanted; but they must be kept free from frost. Those in pots, or planted out in pits, for use at Christmas, should now be kept rather dry; and, if allowed sufficient light and air, they will be good in flavour. Peas, in pots, require much the same treatment as Potatoes; and they should not be allowed to get thick, as, when that happens, they do not set their pods. Use water, with much care. Of French Beans, plant successions in moderate-sized pots, three parts filled with warm healthy soil. Give air whenever it can safely be admitted; and they must be kept near the glass. A night temperature of 60° or 65°, during severe weather, will suit them. Little in the way of stimulant is necessary for them at this dull season. The roots of Cucumbers in fruit should be examined, in order to see that the soil is right as regards moisture, and that the bottom-heat is about 80°. Some kinds succeed under a much lower temperature than others. Dickson's Favourite and Telegraph are two of the best for forcing. A top-heat of from 65° to 70° is a good temperature during mild weather; but when much fire-heat is necessary 60° will be enough. Judicious cropping is a very essential matter at this season. A third succesion of Cucumbers may now be planted, but they should be strong and well-rooted. Where structures are improperly heated, and other means inadequate to the task, Cucumber-growing in winter should not be attempted. Tomatoes in fruit, provided the pots are well filled with roots, will be benefited by applications of weak tepid manure-water. Allow the roots to grow through the pots into turfy loam. Air and light must be supplied as liberally as circumstances will admit. At night, 60° is a sufficiently high temperature at present. Mushroom beds, if dry, and the crop failing, may have their surfaces lightly broken up and overspread with an inch or so of soft loam, mixed with a little cow or sheep manure. They should then be watered with liquid manure, to every three gallons of which a handful of salt has been added. Then beat the whole down smoothly, and keep the temperature a little higher than it has been, and, if the spawn has not been exhausted, a fine second crop will soon appear; make fresh beds as required.—M. Temple.

The Saussureas.—I was glad of an opportunity of comparing our indigenous Saussurea with the Saussurea discolor of the Engadine. Saussurea alpina is not unfrequently found on the highland mountains, and has also occurred on Snowdon, and I believe on Helvellyn, though I have not gathered it myself in that locality. It is a true Alpine both with us and on the Continent. I saw it on some of the Beonina mountains this summer. Compared with the rarer Saussurea discolor it is vastly inferior in the character of its habit and foliage. The leaves of discolor are conspicuously white on the undersides, and contrast very beautifully with its heads of light purple flowers. I usually found it on ledges of limestone rocks, such as Piz Padella, especially where shaded by trees or shrubs, at no very great altitude. It struck me it would be a good fine-foliaged plant if the leaves would retain their character in cultivation. Another of the Saussureas, which I do not know, is found in the calcareous Alpine tracts of Austria-Hungary. It is S. pygmæa, with a single flower. It rarely grows more than 1 or 2 inches high, and its leaves are more essentially root-leaves—linear-lanceolate with revolute margins.—P. I., *The Lodge, Hovingham, York.*

COLOURED ILLUSTRATION.

LILIUM GIGANTEUM.

Drawn by E. HULL.

Our illustration this week is from a drawing, by Mr. E. Hull, of Lilium giganteum as it grew in Professor Owen's garden at Sheen. This noble Lily though often grown in greenhouses and orchard-houses is quite hardy, and flowers regularly in free, warm, and deep soil, and in the partial shelter afforded by Rhododendrons &c. We have seen it flowering well as far north as Edinburgh (in Messrs. Dickson's nurseries). The conditions that seem to suit it best (among those easily found in our gardens), are afforded by well prepared Rhododendron beds, in a sunny but sheltered position. Respecting the plants that flowered at Sheen, Professor Owen gives us the following particulars:—The soil of my garden, like that of the rise of East Sheen continued into Richmond Park, is a gravel of a good binding sort, excellent for the walks. It rests upon "London clay." The depth of the gravel with me is from 10 to 16 feet, and affords good drainage to the beds; but, for any special growth, loam and bog-earth must be added. The gravel was removed, in 1860, to a depth of from 8 to 10 feet, and many loads of bog-earth, with some loam and a little lime, were put in to receive the Rhododendrons and Azaleas in the round "Rhododendron bed" on the lawn. In May, 1872, I planted three bulbs of Lilium giganteum in three of the interspaces of the Rhododendron bushes, which spaces had the best aspect in regard to sunshine. Silver sand, as usual, was put about each bulb, set at the depth of 6 inches, in the above soil, with the addition of old leaf mould, which had been rotted with occasional drenchings of diluted liquid manure. There was a feeble sign of growth in the autumn of 1872, and the bulbs were protected through the winter of 1872 and 1873 by a light covering of dried Fern. In May, 1873, three of the leaves began to rise, and diverge from each bulb. They were carefully protected from occasional frosts, but no flower-stem was developed this summer. After similar winter and spring treatment (as against frosty nights in May), a grander spread of the fine broad, bright, glossy, leaves appeared; and, in June, 1874, I occasionally gave the Lilies diluted liquid manure. From one only of the three did the magnificent columnar flower-stem, 2 inches thick, spring up to the height of 6½ feet, which became crowned with nine flower-buds, the first of which opened on the 2nd of July, lasting to the 9th. As one sauntered over the lawn in the vicinity of the large clustered flowers, their delicate perfume, diffused through the summer air, added to the pleasure afforded by the sight of such noble tropical-looking flowers.

Fruit of the Common Peony.—You have frequently alluded to the beauty of the capsules of Iris fœtidissima when ripe, and exposing the coloured seeds. I send herewith the expanded capsule of another old border acquaintance, which has, I think, even higher claims to be considered striking and ornamental. The specimen in question is by no means what I would wish it to be, as it has been lying by me for some two months or more, and has lost numbers of its strikingly contrasted seeds—some ebony black, and others glowing scarlet. It is scarcely necessary to state that this singular, and to many, puzzling production, is no other than the capsule of the old-fashioned Single Peony, with the tawny divisions of the capsule open and reflexed, and beautifully crested with the scarlet seeds over their surface, except towards the points, where the cresting seeds are as if of polished ebony. I had it from Mr. Riall's garden, Old Connor, and wish I had sent it sooner.—A. Balfe, 28, *Westland Row, Dublin.*

Nature and Geometrical Art.—Ah, how poor and formal are statues, and terraces, and vases, and ribbon-patterns, and geometrial designs, and bedding out, when compared with Nature's handiwork! and though, perhaps, never since the days of the grand old gardener has ornate horticulture attained so great a splendour, what true lover of flowers is really satisfied with our gorgeous modern gardens? We treat them, for the most part, as a child with a new box of paints: his pictures, all the most glaring colours, are crowded together; and the eye, dazzled and bewildered, yearns for that repose and harmony which in Nature, whether in the few flowerets of some hidden nook, or in the fiery autumnal grandeur of some mighty forest, diffuse perpetual peace.—"A Little Tour in Ireland."

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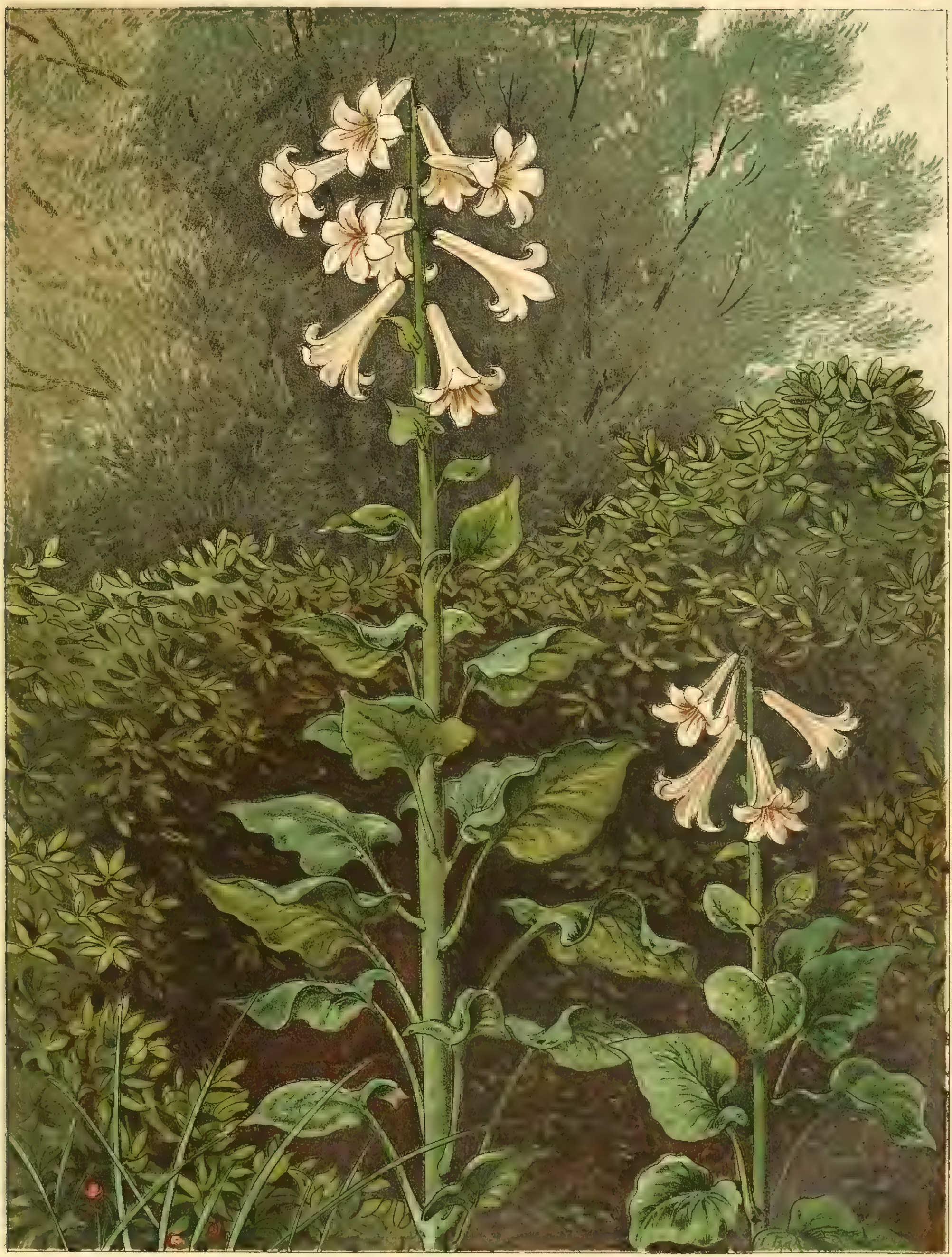


THE GREAT INDIAN LILY IN AN ENGLISH GARDEN

THE GARDENS OF ENGLAND.

HIGHCLERE IN THE RHODODENDRON SEASON.

The Rhododendron has assumed a degree of prominent importance among our ornamental shrubs which its splendid and profuse bloom and its fine evergreen foliage fully justify. The introduction of new species, and the successful practice of hybridisation, have imparted to this handsome shrub its present great attractiveness and horticultural interest. It is, indeed, difficult to believe that many of our most enthusiastic horticulturists—both amateurs and professional gardeners—recollect the time when the old Rhododendron ponticum, with its pale lilac blossoms and sombre foliage, was the only plant of the genus to be found in our gardens. Then came the introduction of the Indian tree Rhododendron, with its magnificent blossoms of deep sanguineous scarlet, to which our botanists gave the name of Rhododendron arboreum. What a priceless addition to our shubberies would this glorious plant have been if its constitution had but proved sufficiently robust to bear our climate! Unfortunately it was not "hardy," and when admiring crowds went to see the fine specimens of it in Mr. Knight's conservatory, with trunks like those of young forest trees, the general admiration was somewhat tempered with regret. Fortunately, the system of hybridisation had successfully set in, and the joint offspring of the old hardy species and the glorious new introduction proved more or less able to bear our treacherous climate; while many new and brilliant shades of colour in the flowers also resulted from the new alliance. These crossings with the Rhododendron arboreum, and also with an American species, R. catawbiense, marked an entirely new phase in Rhododendron culture; and the subsequent exhibitions, by Messrs. Waterer, of the magnificent new varieties, in vast numbers, each plant rivalling its neighbour in brilliancy of colour and profuseness of bloom, will remain on the records of horticultural progress as one of its most brilliant epochs. The Rhododendron shows at the gardens of South Kensington and Regent's Park have long been kinds of floral festivals each successive spring, not only among true flower lovers, but among the general public, who never fail to hail these displays of floral luxuriance, with their gorgeous colours of a thousand shades and gradations, as among the impatiently-expected treats of the early part of the London season. Beautiful as are these annual displays, composed entirely of selected specimens, in which none but the finest grown and most profusely bloomed plants are allowed to appear, still, the canvas covering of the fairy-like scene is not, after all, the blue spring sky; and notwithstanding all the ingenuity of art lavished upon the temporary turf carpeting, from which the flower-weighted shrubs seem to be naturally growing, a wish creeps over the mind, in the shape of a longing to witness such a scene in the open air, and such groups of glorious shrubs clothing natural hills and vales with like beauty. I have often dismissed the wish as one of the beautiful impossibilities of the imagination; and yet, one fine morning in the end of May, I found it realised—even more than realised—in the woods and valleys of Highclere, especially round the lake, in the waters of which the forms and colours of the woods were reflected as in a mirror. The roads through four thousand acres of wood and park are bordered in many parts with Rhododendrons for long distances, and in the congenial soil of the place they have attained a height of from 12 to 15 feet, many of the more freely blooming varieties forming dense masses of crimson, violet, or white. Highclere is, in fact, one of the places where the new kinds were first thoroughly appreciated, and planted out in great abundance; several of the most favourite of the varieties having been raised there, as R. altaclerense, Victoria, and several other kinds. A visit to Highclere in the Rhododendron season is a delightful privilege not easily forgotten; the only drawback being, that while there are so many other things to be seen, the gorgeous attraction of the Azaleas and Rhododendrons occupies too exclusively the whole of the visitor's attention. Even the castle itself, one of the best designs of the late Sir C. Barry, and the noble Vandycks and Sir Joshuas in the principal apartments, can claim but a passing glance in the Rhododendron season, although one would desire to give a whole day to the pictures alone. There is an ancient Yew, too, the trunk of which is nearly 30 feet in circumference, and which must have been standing, in its prime, when Roman and Saxon and Dane successively battled for the possession of these fair Hampshire Hills. H. N. H.

Highclere.

The Impossible.—A well-known German florist related, in a high state of irritation, his troubles in this way. He said—"I have so much drouble mit de ladies ven dey come to buy mine Rose; dey vants him hardy, dey vants him doubles, dey vants him moontly, dey vants him fragrand, dey vants him nice gooler, dey vants him ebery dings in one Rose. I hopes I am not vat you calls von uncallant man, but I have somedimes to say to dat ladies, 'Madame, I never often sees dat ladies dat vas rich, dat vas good temper, dat vas youngs, dat vas clever, dat vas perfection in one ladies. I see her much not!'"

THE KITCHEN GARDEN.

The Best Time for Planting Asparagus.—I have invariably found Asparagus to succeed best if removed while in active growth, even as late as July. I have never known one-year seedlings to fail, and I have never known perfect success to attend the removal of older plants. Many object to the loss of time caused by planting one-year-old seedlings. To overcome this difficulty, I manure the ground very highly on which the seed is to be sown. It is sown in rows a foot apart, and the young plants are thinned out to 4 or 5 inches asunder, by which means I obtain better roots than ordinary two-year-old plants, and from these some heads may be cut twelve months after planting.—Richard Smith, *Worcester.*

Hepper's Goliath Tomato.—Having grown a quantity of Tomatoes this season, consisting of several varieties out of doors, on walls and also in a late Peach case. I have found Hepper's Goliath greatly surpass all others grown in the same way. On one plant in the Peach case there is at present ninety fruit; while, from the same plant, I last week cut two dozen and a half, two of which weighed 20 ozs.; and half the fruit now on the plant would, I should think, each average the same weight. I do not, however, value this variety so much for the size of its fruit as for the weight of the crop. We have been cutting from the same plant ever since the end of July, but no account has been kept as to the quantity until last week. —W. H.

Advantages of Hoeing.—Too many persons who use the hoe, suppose that the chief benefit derived from it is to kill the weeds. That certainly is an important work, and one greatly neglected. Weeds are not only in the way of cultivating the crops which we plant, but they rob them of much of the nutriment which they need. Hoeing, then, is an essential service in respect to destroying the weeds. There are other advantages, however, which are commonly overlooked. Let us see: 1. The loosening of the soil in the operation of hoeing is beneficial to the plants, as much as the destruction of the weeds or more so. 2. Moisture abounds in the atmosphere during the hottest months, and is absorbed and retained most abundantly by a soil which is in the most friable state. 3. Then, again, pulverising soil enables it better to retain the moisture absorbed. 4. The soil, in order to be healthy and active, must breathe. A light porous soil admits the air, and thus it is invigorated by the atmosphere. 5. The sun's rays heat a hard soil much more quickly than a loose one, and the hotter the soil is, so much greater will be the evaporation from it. So that the hard soil is deprived of its moisture much sooner than one of a loose texture. 6. The soil that has been kept loose near the surface by the action of the hoe, will receive and hold the rain water that falls, while a hard soil will allow most of it to run off into the valleys and streams as it falls.

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

Best Four Broccolies.—Four kinds of Broccoli which everybody should grow are Walcheren, for autumn; Snow's White for winter; Watts's Excelsior, for mid-season; and last, but not least, Cattell's Eclipse. Excelsior here, this season, it is in every respect perfect.—Stamford.

Canadian Wonder Bean for Forcing.—It is certainly the best forcer with which I am acquainted. It excels all others in its cropping qualities. It is, in short, first rate in every respect, the individual Beans being nearly twice the size of those of other kinds—6 to 8 inches long, straight as gun barrels, tender, and delicious.—R. Gilbert.

A Good Edging for a Kitchen Garden.—Sow in a small bed some Moss-curled Parsley in August, and, about April 10th, prick it out along the edges of the walk 1 foot apart, and two rows instead of one. Behind it sow a drill, or better, sow in boxes Dell's Beet, and plant it out as soon as it is ready. These two common but all-important plants give the vegetable quarters a dressed appearance.—Burghley.

Horse-radish Culture.—Is the plan of growing this by placing a common round drain-tile with it, and set a couple of inches in the earth, filling the tile with fine earth, and planting a set near the top of the tile and 10 inches above the surface, sufficiently well known? Mr. Bradley, at Preston Hall, says it is an admirable plan; digging for the product is saved, and a fine clean stem is the result.—V.

Tarragon.—This is so constantly required in a green state, that some special care is necessary to ensure an abundant supply of it. Its roots should, therefore, be potted in October, and introduced into gentle heat as required for the winter supply. Out of doors, when the soil is not naturally favourable to its growth, it should be mixed with a few barrow-loads of road scrapings and thoroughly decayed mortar-rubbish, and the beds should be raised a little above the level of the surrounding surface. By cutting portions of the plants for drying at different times, we are never short of a supply of it.—J. Groom.

Yellow-fruited Capsicums.—These are certainly worth cultivating for purposes of decoration alone. The seed should be sown early in spring, and if the young plants are grown on in a moderate heat in either a pit or frame, they will fruit ten weeks after sowing, and will have a very effective appearance, especially when grouped with the scarlet-fruited varieties. When grown close to the glass in a gentle heat and allowed plenty of air, they form dwarf shrubby plants a foot to 18 inches high, each bearing from twenty to fifty curiously contorted shining bright yellow fruits, each as large as a pigeon's egg, which last in beauty for months.—Q.

THE FRUIT GARDEN.

HINTS ON FRUIT TREE PLANTING.

The following clear and sound directions are given in Messrs. Ellwanger & Barry's new fruit catalogue:

Preparation of the Soil and Trees.—For fruit trees the soil should be dry, either naturally, or made so by thorough drainage, as they will not live or thrive on a soil constantly saturated with stagnant moisture. It should also be well prepared by ploughing twice at least, beforehand, using the sub-soil plough after the common one, at the second ploughing. On new fresh lands, manuring will be unnecessary; but on lands exhausted by cropping, fertilisers must be applied, either by turning in heavy crops of Clover, or well decomposed manure or compost. To ensure a good growth of fruit trees, land should be in as good condition as for a crop of Wheat, Corn, or Potatoes. In preparing soil fatal errors are often commited. As a general thing, trees are placed in the ground precisely as they are sent from the nursery. In removing a tree, no matter how carefully it may be done, a portion of the roots are broken and destroyed, and consequently the balance that existed in the structure of the tree is deranged. This must be restored by a proper pruning, adapted to the size, form, and condition of the tree as follows:

Pruning Young Trees.—Standard orchard trees, as sent from the nursery, vary from 5 to 8 feet in height, with naked stems or trunks, and a number of branches at the top forming a head. These branches should be all cut back to within three or four buds of their base. This lessens the demand upon the roots, and enables the remaining buds to push with vigour. In the case of older trees of extra size, the pruning must be in proportion; as a general thing, it will be safe to shorten all the previous years' shoots to three or four buds at their base, and where the branches are very numerous, some may be cut out entirely. Pyramidal trees, if of two or three years' growth, with a number of side branches, will require to be pruned with a two-fold object in view, viz., the growth of the tree and the desired form. The branches must be cut into the form of a pyramid by shortening the lower ones, say one half, those above them shorter, and the upper ones around the leading shoot to within two or three buds of their base. The leader itself must be shortened back one-half or more. When trees have been dried or injured much by exposure, the pruning must be closer than if in good order. Dwarf standard trees and dwarf bushes must be pruned as recommended for standards, aiming at producing a round, well-proportioned head, with the main branches regularly distributed and far enough apart to admit air freely to all parts. Yearling trees intended for pyramids may have a few side branches, the smallest of which should be cut clean away, reserving only the strongest and best placed. In other respects they will be pruned as directed for trees of two years' growth. Those having no side branches should be cut back so far as to ensure the production of a tier of branches within 12 inches of the ground. A strong yearling, 4 to 6 feet, may be cut back about half, and the weaker ones more than that. It is better to cut too low than not low enough, for if the first tier of branches be not low enough, the pyramidal form cannot afterwards be perfected.

Planting, Staking, Mulching, and after Culture.—In planting, dig holes in the first place, large enough to admit the roots of the tree to spread out in their natural position. Then, having the tree pruned as above directed, let one person hold it in an upright position, and the other shovel in the earth, carefully putting the finest and the best from the surface in among the roots, filling every interstice, and bringing every root in contact with the soil. When the earth is nearly filled in, a pail of water may be thrown on to settle and wash in the earth around the roots; then fill in the remainder, and tread gently with the foot. The use of water is seldom necessary, except in dry weather, early in fall or late in spring. Guard against planting too deep; the trees, after the ground settles, should stand in this respect as they did in the nursery. Trees on dwarf stocks should stand so that all the stock be under the ground, and no more. In very dry, gravelly ground, the holes should be dug twice the usual size and depth, and filled in with good loamy soil. If trees are tall and much exposed to winds, a stake should be planted with the tree, to which it should be tied in such a manner as to avoid chafing. A piece of matting or cloth may be put between the tree and the stake. When the tree is planted, throw around it as far as the roots extend, and a foot beyond, 5 or 6 inches deep of rough manure or litter. This is particularly necessary in dry ground, and is highly advantageous everywhere, both in spring and fall planting. It prevents the ground from baking or cracking, and maintains an equal temperature about the roots. Grass or weeds should not be allowed to grow around young trees after being planted, as it stunts their growth and utterly ruins them. The ground should be kept clean and loose around them, until, at least, they are of bearing size.

Place the packages if frozen unopened, in a cellar or some such place, cool, but free from frost, until perfectly thawed, when they can be unpacked, and either planted or placed in a trench, until convenient to plant. Treated thus, they will not be injured by the freezing. Trees procured in the fall for spring planting, should be laid in trenches in a slanting position to avoid the winds; the situation should also be sheltered and the soil dry. A mulching on the roots and a few evergreen boughs over the tops, will afford good protection.

Bourjassotte Grise Fig.—I have been fruiting a large collection of Figs to see which are the best worth growing, and I think there is no doubt that the Bourjassotte Grise is the finest variety in cultivation. This is the same kind which has been long cultivated at Clumber under the name of Blanche, a most inappropriate name for it, because the outside is greyish-green, and the inside very dark crimson. The Bourjassotte Grise is never bad, and hardly ever second-rate; in fact, I never gather a fruit without expecting it to be first-rate. As many persons want to plant a Fig, and perhaps only one, let me advise them to choose this kind in preference to all others.—J. R. Pearson.

Early Grapes on Late Stocks.—Do the Black Hamburgh and early white varieties of Grapes answer for early forcing inarched on Muscats and Lady Downes?—G. F. F. [Black Hamburghs do quite as well for forcing inarched on Muscat of Alexandria as on their own roots. Lady Downes is not a first-rate stock for the Hamburgh, but it may be forced to fruit as early on Lady Downes as on its own roots. It is seldom necessary to graft the Black Hamburgh on any other variety, as it generally succeeds equally well on its own roots as on those of any other kind; but, where it is desirable to have a few rods of Black Hamburgh in a house of strong-rooted Lady Downes, inarching may be resorted to with speedy and useful results. For either early or other forcing, Lady Downes is a stock on which very few early white Grapes do better than on their own roots, and it should never be used when a Muscat can be had. The Muscat is a stock on which no early white Grape ever fails. Royal Muscadine, Buckland's Sweetwater, Frontignans, and the best of the Chasselas varieties are improved, in many instances, in berry, bunch, and flavour by being worked on the Muscat. Golden Champion is not so liable to spot or blemish on the Muscat as on other varieties; and Duke of Buccleuch acquires a fine colour and exquisite flavour on it. For all kinds of both early and late Grapes there is no stock equal to the Muscat of Alexandria.—J. Muir.]

Large Vines.—The big Grape Vine which is to be exhibited at Philadelphia Exhibition, has, after several weeks of labour, been dug up, divided into sections, and boxed for transportation. This famous Vine, is without doubt the largest in the world. The celebrated Vine at Hampton Court, is 9 inches in diameter 3 feet from the ground. This Vine is 14 inches in diameter at the same height, and nearer the ground has a measurement of 18 inches in diameter, or 56 inches in circumference, while its foliage has long covered a space equal to 10,000 square feet. The Hampton Court Vine produces annually from 1,000 to 2,000 lbs. of Grapes. The produce of this Vine has often reached 7,500 clusters, of an average weight of 1 to 1½ lb. each, of nearly 12,000 lbs. It is of the variety known as the Mission Grape, and has been growing out-of-doors. Its age is between fifty and sixty years. There still remains in the same neighbourhood another Vine which also outranks that at Hampton Court, being now sixteen years old and 16 inches in diameter 3 feet from the ground, and making growth at the rate of 1 inch in diameter annually. Last year it furnished from 8,000 to 10,000 lbs. weight of Grapes.

Figs Failing to Ripen.—I have two Fig trees growing in the corners of the wall of a kitchen garden; one faces south and east, the other north and east. The soil is clay, and the situation low. The trees produce an enormous quantity of Figs, but they never grow larger than about the size of a man's thumb, and of course never ripen. The trees have not been pruned for many years, and grow just as they please. How can I induce them to ripen their fruit? Our place is in the Weald of Sussex where spring frosts are occasionally very severe; but this year they were but slight.—H. M. H. [I am inclined to think that the Fig trees in question fail to mature their fruit through defective root-action. A cold clay is the worst possible soil for Figs. I would recommend that the trees be lifted and the border concreted to prevent the roots again getting into the clay, afterwards re-planting in good sound loam. I also think that as the trees have been allowed to grow as they please, they may have become over-crowded with wood, and that, if such is the case, some of it must be thinned out before fruit-bearing wood can be produced. Badly ripened wood is a sure source of failure, and, in order to get it fully matured, every branch and leaf must have plenty of light and air. The best way of pruning Figs is to thin out the young shoots well during the summer time. As a rule, winter pruning is objectionable, for it invariably causes the trees to grow stronger than summer thinning. I therefore conclude that unripe wood and a cold sub-soil are the causes of failure in the case of your correspondent's Figs.—W. Wildsmith.]

Varieties of Pine-apple.—Allow me to ask Mr. Muir, who gives us weekly instructions respecting the growth of Pine-apples, to name the best varieties now in cultivation, including in this list a description of the King Pine-apple, so much spoken of in former years.—An Old Pine Grower. [The varieties of Pines now generally cultivated are Black Jamaica, Queen, Thoresby Queen, Meudon Queen, Smooth-leaved Cayenne, Globe, Charlotte Rothschild, Enville, Providence, Prince Albert, Montserrat, Prickly Cayenne, Black Prince, and Blood-red. Of the King Pine, to which reference is made, I have no experience. It was, I am informed, very much grown thirty or forty years ago; it belongs to the smooth-leaved class, the foliage being narrow, and the fruit attaining about the same size as that of the Jamaica, with a rather long crown and fair flavour. Superior varieties seem to have driven it out of cultivation.—J. Muir.]

Apples for Ornament or Preserving.—Under this heading the following kinds are enumerated in Messrs. Ellwanger & Barry's descriptive catalogue of fruits:—Large Red Siberian Crab—Nearly twice as large as the old Siberian Crab, but similar in appearance and quality; tree grows large. Yellow Siberian Crab (Golden Beauty)—As large as the last, and of a beautiful golden yellow. Large Yellow Crab—Larger than any of the preceding; pale yellow with a tint of red in the sun; tree a vigorous grower. Transcendant Crab—A very beautiful variety of the Siberian Crab; red and yellow; tree, a remarkably strong grower. Oblong Crab—Very distinct, oblong in form; dark crimson, the most beautiful of all the Crabs. Lady Crab—Beautiful, resembling the Lady Apple. Montreal Beauty—Resembles the Golden Beauty, but larger. Hyslop's Crab—Almost as large as the Early Strawberry Apple; deep crimson; very popular in the west, on account of its large size, beauty, and hardiness. Striped Crab—A variety of Russian origin. Kaida Crab, also a variety of Russian origin. The following Crabs, raised by C. Andrews, of Marengo, Ill., are highly recommended:—Coral—early winter; keeping until about February. Chicago—December to March. Marengo—January to June.

The Grape Cure.—There are on the Continent numerous establishments devoted to the application of this remedy; two in France—Aigle in Savoy and Celles les Bains in the Ardèche; three at least in Switzerland—Veyteaux, Vévey, Montreux; and many in Germany, Austria, the Tyrol, and Hungary. The cure is very simple. It consists in eating an immense quantity of Grapes, the thin-skinned, sweet, white varieties being best for the purpose. The patient takes but little ordinary food, and is required to eat 3 or 4 lbs. of the fruit a day at first, the quantity being gradually increased to 8, 10, and even 12 lbs. of Grapes. This is, if possible, to be eaten in the open air, in the Vineyard whence the supply is derived—an arrangement which, no doubt, greatly conduces to the efficiency of the cure. It is frequently undertaken in their private practice by French physicians, who possess the material for it in the incomparable Chasselas, of which such quantities are now selling in Paris.

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Best Vines for a Cool House.—I should be obliged for information as to the best Vines for planting in a roomy and excellent orchard-house, but without any heating apparatus.—T. [The best Vines for a cold orchard-house are Black Hamburgh, Buckland Sweet Water, Madresfield Court, Foster's White Seedling, and the Ascot Frontignan, a well-flavoured Grape.—F.]

Colouring Grapes.—One of the most important points in reference to colouring Grapes, is to allow the side-shoots to grow freely, after the final thinning. If the leaves half hide the bunches, so much the better. I learnt this fact at Cole Orton, which is a sufficient guarantee of the excellence of the plan, as I consider Mr. Henderson one of our best Grape growers.—R. Gilbert, *Burghley*.

Influence of the Stock on the Scion.—How much, in the case of many fruits, the quality is influenced by the stock I saw lately, when we gathered here, among other Pears, the Rokeby. This sort was taken from a tree worked on the Pear stock, and was, in every stage of ripening, very bad, being dry and mealy, while the same sort, worked on the Quince, in the same ground, was full of juice, melting, and deliciously flavoured, and a fortnight earlier. —G. W.

A New Way with Figs.—According to Messrs. Ellwanger & Barry, Figs may be grown as bushes in the garden, in the Northern States, if they are taken up annually, the first week in November, with a ball of earth attached to the roots, and placed in a cellar till about the middle of May, when they should be taken out and re-planted.

The largest garden of Pine-apples in the world is probably one in the eastern district of New Providence, in the Bahamas. From one spot can be seen at a single glance 1,200,000 Pine-apples growing.

TRENCHING IN LONDON MARKET GARDENS.

From the 1st of November till the end of January every empty piece of ground that can be spared uncropped for more than three weeks is trenched, more particularly if it has not been done the previous season. Even the very ground amongst fruit trees is trenched and manured. Trenching orchard tree ground may seem undesirable, on account of possible damage to the roots; but it is, nevertheless, extensively carried out in the neighbourhood of Barnes, Putney, and Chiswick, as any traveller that way can see. Mr. Dancer, of Chiswick, one of the very highest authorities as regards fruits, states that digging, and even trenching, amongst fruit trees contributes immensely to their benefit, provided it is annually performed and plenty of manure is added. The vegetable crops, too, that are grown between the trees require deep working and enriching of the soil. Mr. Dancer has often shown me the soil as it was being turned up, and I observed that it contained a mass of still unexhausted manure from former applications; hence the flourishing condition of his trees and the fine fruit that they produce. Trenching is considered of the first importance in the case of ground about to be cropped with early vegetables, such as Cauliflowers and Lettuces, and also for root crops, such as Parsnips, Beet, and Carrots. If the future crop is to consist of Vegetable Marrows, or any of the Cabbage tribe, the ground is heavily manured when it is trenched, the manure being spread on the surface of the soil, which is already strewed with decaying vegetable refuse, but Cabbage stumps or live roots are always removed. The field or plot of ground is then measured off into 2 feet widths, being the width of the trenches. The latter are made two, or, at most, three spades deep, and are laid up in the form of rough ridges, a condition in which they remain till planting or sowing time. In trenching, the men are placed about four paces apart, and each works till he meets his neighbour. When one trench is finished, the manure and surface of the adjoining one is cast into the bottom of it, and it is then laid up in a ridge, just as in the case of the other, and thus the work goes on until it is finished. If Parsnips, Carrots, Beet, Salsafy, Scorzonera, or other deep-rooting crops are to occupy the ground, it is not manured at trenching time, as the application of fresh manure would produce forked roots, which are much less valuable than such as are straight. It is, however, indispensable that the ground should have had a good manuring for the previous year's crop. At planting time the ridges are commonly levelled a little, by means of the hoe, spade, or plough; but, in some instances, crops of Cauliflowers or Cabbages are planted low down on the sides of the ridges, which afford them protection from winds until they have fairly began to grow. The ridges are then reduced in height by means of hoeing. W. F.

EDGINGS FOR GARDEN WALKS.

One of the best materials for this purpose is Box; but it has the fault of harbouring slugs, especially when not subjected to an annual clipping, which should be done early in the year; for, if done late, the hot sun scorches the leaves, and spoils their green appearance. When dressed, for instance, in April, the young growths have a chance of becoming well developed and keep bright and green during the whole summer. If planted in autumn, the long points require shortening in April; but, if planted in March, it is much better left untouched until the following spring. Box should be cut down to about 3 inches from the ground; and if this is done with regularity every year, it is many years before it becomes bare at the bottom. Small patches of it here and there occasionally decay, especially in kitchen gardens, where there is much wheeling; and these should be replaced with fresh pieces every spring. Besides Box, various kinds of tiles, made of terra cotta or burnt clay, are used for edgings, and, affording no protection to vermin and effectually preventing the soil from mixing with the gravel, they make suitable edgings for kitchen gardens. They are laid much in the same way as Box, and they should not rise more than 2 inches above the level of the walk. A tile called the "Chatsworth conduit" is so constructed that that portion of it which is below the ground forms a conduit that conveys all the water which falls in the shape of rain into large tanks in different parts of the garden underneath the walks. These tanks form stores, from which water may be conveniently drawn, and in dry seasons much labour may be saved by their use. Tiles do not look well either in pleasure grounds or in the flower garden. For the former Grass verges associate best with the surroundings, and when beds come close up to the walks, a verge of 12 or more inches in width should intervene. Grass edgings should be trimmed up early in spring, but unless where it is actually necessary, very little should be pared off them, or a deep bare face is left which does not look well. In spring the Grass grows quickly over the cut part, and during summer it should be allowed to grow along the whole edge, so as to join the gravel. Cotoneaster microphylla makes, under certain circumstances, a pretty edging. It cannot certainly be cut so close as Box, but when allowed to grow about 4 inches high and 3 inches wide, it looks exceedingly well, either when in flower or fruit. It thrives in any ordinary garden soil, and small plants of it may be put in a foot or two apart and pegged down until the edging is thoroughly formed. Thrift, too, makes a good edging, growing as it does scarcely more than 2 inches high, while during May, and, indeed, throughout the summer, it is covered with bright pink blossoms. It may be planted in the end of March, when it soon becomes established, and forms a permanent edging for many years. M.

HARDY BEGONIAS.

In reply to the assertion made by "Oxon." (see p. 474) that Begonia Veitchii is better than any of the tender Begonias, I cannot refrain from expressing my opinion that he must have but a limited acquaintance with these plants, or he would not speak in these undeservedly high terms of a variety which is far inferior in size of bloom, brilliancy of colour, and beauty of foliage, to many of the hybrid varieties of Continental origin now in commerce, and most notably to that really fine variety B. Corail-Rose, which I should advise "Oxon." at once to procure from Mr. Lemoine, of Nancy, as its blooms are nearly double the size of those of Veitchii, and far more brilliant and conspicuous in colour; while the foliage is larger and more vigorous in growth, and possesses a deep and most remarkable metallic sheen or gloss, which makes it a great ornament to the plant. During the last summer I had a plant of each of these varieties growing almost side by side in the same bed in the open air, and I and others, who saw them in bloom continually, were much struck by the great superiority of B. Corail-Rose, which made the blooms of Veitchii seem quite small and inconspicuous in comparison. As to the hardiness or otherwise of these beautiful plants, I am sorry to say I can give your correspondent no information, as I have always feared to trust any of my tubers of them out after September, not from any fear that they might suffer from frost, of which we have hardly any on the mild sea-board of the county of Cork, but from fear that the continued wet of our rainy winter might cause the tubers to decay. W. E. G.

Junior Carlton Club.

Your correspondent "Oxon.," whose garden I hope some day to have the pleasure of seeing, asks (p. 482) where true Gentiana gelida is grown. I saw it in perfection last July at the Botanic Garden in Edinburgh, and in Mr. Jenner's fine collection of Alpines at Joppa, near Edinburgh; it had several shades of colour. I do not think he need fear planting out Begonia Veitchii—it stood several winters on the rock-work here; as it did not make its appearance this year, I grubbed out the earth and found that the soil had slipped and made a hollow place under the root, which fully accounted for the death of the plant. Begonia Sedeni close by stood the winter perfectly. B. Veitchii seeded the year before, so I shall have a few young plants to put out next year. Anomatheca cruenta sows itself about Mr. Ellacombe's garden at Bitton. It stood last winter in several places here and seeded freely. George F. Wilson.

Heatherbank, Weybridge Heath.

A New Insecticide.—At the last meeting of the Royal Horticultural Society, the Hon. and Rev. J. T. Boscawen called attention to his insecticide, which consists of camphor dissolved in methylated spirits to saturation, and mixed with soft soap to the consistence of cream. When diluted so as to be fit for use with a syringe, this had been found a most efficacious substitute for fumigating in the case of mealy-bug, scale, red spider, &c.

Woodlice in Frames.—After trying various remedies, I have found pouring boiling water round the inside of my frames the most effectual. Of course I pour the water close to the sides of the frame, taking care not to let it reach any part of the plants. I have also trapped them in great numbers in flower-pots containing a piece of Apple or Potato as a bait, with some dry Moss loosely placed over it. This, however, is a more tedious way of getting rid of them than by means of the boiling water as just described.—H. W.

THE INDOOR GARDEN.

MODERN CYCLAMEN CULTURE.

Almost the youngest amongst us can remember the change of methods which has taken place in cultivating this favourite flower. The old plan was to grow on old plants year after year, and to systematically dry them off during the summer months, just as Gloxinias are dried off in winter; and the result was depauperated plants, with scarcely half-a-dozen flowers on them. Contrast this system with the present, which is to sow the seed as soon as ripe, and to grow on the plants in light airy houses or pits, in a genial temperature, allowing them to suffer no check whatever; and the result is fresh healthy plants, bearing from 100 to 200 richly-coloured flowers, fifteen months from the time of sowing. Mr. H. Little, of Twickenham, who has so often exhibited such excellent examples of Cyclamens at South Kensington, and elsewhere, thus records his experience in the matter:—My aim is to produce flowers of rich and distinct colours, with good shape and substance, good foliage, and especially plants with a good habit. I cross only my very choicest varieties on the above principles, and recommend not more than three or four blooms for seed on each plant, and for this reason—each bloom when crossed will produce, putting aside accident, a pod containing from thirty to sixty or more seeds; and as each pod grows, if well attended to, to the size of a large hazel-nut, I am sure that if too many pods are produced by a bulb, it will either die or give scarcely any bloom the following season. I cross each bloom carefully, if I want colour, with two blooms of separate plants of the best colour and shape I can find, and so with each, for I find you can vary the flower very much; and I hope to see Cyclamens produced with striped and edged petals, or with spotted flowers. The seed ripens in July and August. I sow in September in pots in a light fibrous soil, with a little leaf mould and sharp sand, well drained. When the seedlings are fit to handle, I prick out about ten or twelve in a 48-sized pot, in similar soil. When large enough, I pot singly in small 60-sized pots, and re-pot when these are full of roots. For the last potting prior to blooming, I use stiffer soil—some leaf mould, sand, and some well-decayed manure, being careful that there are no grubs or worms in this—and give plenty of drainage. While growing during the summer, the foliage must be kept very clean and well syringed. When in bloom, do without fire-heat as much as possible, giving air on all occasions when free from frost or rain. I cannot too strongly insist on the absolute necessity of keeping the plants in all their stages of growth and bloom free from green fly or red spider. Stop them at once, and do not leave off till all traces of them are removed; for if allowed to gain head, the beauty of the plant will be completely spoilt. The bloom will become crippled, and the foliage shrivelled and unhealthy. I can scarcely praise Cyclamens too much; for whilst growing, and previous to blooming, they are most ornamental plants; and in this stage, as well as when full of blossom, they are valuable for table decoration. They commence blooming in September and October, and continue, if not forced in heat, until April and May. They could be exhibited in December; but in February and March I think they could be shown in perfection, the colours being then true and fresh, and the foliage firm and good. Later on, the sun affects them, and softens both foliage and flower. I like to see them without sticks, ties, or supports of any kind; nothing can be more graceful when well grown and of good habit. The bulbs should be carefully watered and well ripened after blooming, as I think next season's display depends on this. They should not be shaken out or re-potted, I consider, until they break, when they should be carefully cleared of decayed stalks, and potted into smaller pots than those in which they last bloomed, shifting them into larger ones as they require it. F. W.

A well-grown Persian Cyclamen.

WATER-TANKS IN GARDENS.

Nothing affects the well-being of a garden more than its water supply. In hothouses the very life of plants depends upon a regular supply of moisture, administered in various ways, according to the wants of the different subjects under cultivation, and next to the question of supply itself comes that of its quality, abundance, and accessibility. I have known injury inflicted many a time on plants through a stinted supply of water, simply because the workmen have found it troublesome to procure, and cultivators know how many plants are ruined by being watered with water much colder than the soil in which the roots are growing, because it could not, perhaps, be procured at the proper temperature without a little inconvenience. These are matters I have always kept in view above most other things in connection with fruit and plant culture, and I attribute much of what success I have experienced to always having water in abundance and near at hand. Gutters are always attached to hothouses to carry off rain-water, but not a tithe of it is ever preserved; a portion of it, perhaps, finds its way into one or two small tanks, but most of it goes into the drains. Now, the quantity of water used daily in a moderate-sized garden is enormous, and if there is no steady supply from a reservoir dependence must be placed on rain-water, which, under ordinary circumstances, might be collected in sufficient quantities to meet the whole demand. The best and cheapest tanks for holding large quantities are those formed of brick and cement. I have seen enough water collected under a Pine-pit bed to meet all wants. The bottoms of the retaining walls of the pit were lined inside, nearly as high as the bottom-heat pipes, with a half-brick set in cement; the bottom was formed of two courses of brick, laid flat, and bedded in the same material, and the whole was lined with two coats of Portland cement, carefully applied, making all perfectly water-tight for any length of time. By utilising the inner walls of a brick bed below the floor-line in this way, or indeed any spare corner of a house or passage, an excellent and capacious tank may be formed at little expense, and any ordinary mason can do the work. It is only necessary to see that the inner lining of brick is set in cement, and that the cement lining is put on evenly and with care, and the tank may be constructed above a boiler or anywhere else. The means of drawing the water will depend upon circumstances; a pump or dip-hole under the path is the usual plan. For portable tanks we like those constructed of wood and lined with strong sheet lead. These last many years if the wood is kept painted, and not allowed to come in contact with the soil, which causes decay. Better still than this, however, are galvanised iron tanks, which are almost indestructible. They are light and portable, and may be conveniently set above the hot-water pipes, when by conduction the water very soon becomes heated to the temperature of the house. To employ either of the two latter, however, for collecting large supplies of water, would not be advisable. For this purpose the brick and cement tank is the best, and should be resorted to on a large scale wherever the water supply is precarious. During the few dry seasons we had a few years ago, some large gardens suffered to a ruinous extent from want of water; every drop had to be carted for months, and at a cost which would have defrayed the expense of a tank, which, once filled, would have outlasted the drought. In gardens where no glass roofs exist for collecting water, the walks may be made to serve that end, or even the garden drains. After a heavy rain these discharge tons of water in a few hours, and, if directed into a good-sized tank, placed where most convenient in the course of the main drain, the garden need never want a supply. Outdoor tanks should always be covered over and protected from frost. J. S. W.

Is Boiler-water Injurious to Plants?—No injurious results need be apprehended from using the above for plant watering, unless it contains a good deal of iron rust from standing long in the pipes, which it probably has, to cause the bad smell which your correspondent remarks. If that is the case, it will be better to draw the whole out, and re-fill with clear soft water, and, when doing so, the tap should be left open while throwing in the first few potfuls, so as to give the boiler a good wash out. Water that has been heated is generally preferable for most purposes, as the fire helps to soften it, and plants always do better when supplied with soft water.—J. Sheppard.

Cultivating the Variegated Pine-apple.—This fine plant is seldom seen in good condition, owing to its getting too much shade and pot room. We have grown beautiful specimens of it in our Pine stoves by elevating the pot on a single stake, on the top of which a flat piece of wood was nailed on which to set them, right clear above the other Pines, almost touching the glass, and fully exposed to the sunshine: even on the brightest day in summer we never shade established plants of it. We use as compost for it peat and turfy loam, and grow it in small pots. The leaves droop over the edges of the pots in such abundance as to quite conceal them, and they vary in their beautiful shades of variegation from clear white to a fiery red.—J. Groom.

The Moon-creeper (Ipomœa Bona Nox).—This beautiful white climber is occasionally met with, but its property of flowering at night no doubt interferes with its more extended cultivation. It is a tender annual, and does well in a low span-roofed stove-house, where it can run along the roof. The flowers open soon after dusk, and are in the fulness of their beauty in the dead of the night, and they continue expanded till nearly noon the next day. There is such an exquisite delicacy about the shining whiteness of the flowers, that it is singular the plant is not more generally cultivated. There is no difficulty in obtaining seed, and they should be raised in a moist brisk heat in April, grown on quickly, and potted into a large pot to flower, or be planted out in a small pit or any convenient place, and trained along a wire or any such support, under the ridge of a span-roofed house, or in any suitable place.—D.

Azalea amœna Valuable for Forcing.—This is so useful a plant that one can scarcely be overstocked with it, as its bright violet-shot crimson flowers may be had in abundance during at least six months of the year. Established plants of it, in 60-sized pots, full of flower-buds, are sold so cheaply in nurseries that the wonder is it is not more generally grown than it is. If procured at this season they may be gently forced into flower, when they are equally useful for room or conservatory decoration, and also in the form of cut flowers. As soon as they have done flowering, young growth must be encouraged by a moist genial heat; for the earlier the new wood is ripe, the sooner will the plants flower next year. When growth is completed, they should be gradually hardened off, and by midsummer they will only require the protection of a cold pit, to shelter them from heavy rain or wind. They must at all times be well attended to with water; for, although they do not require such an abundance of it as soft-wooded plants, yet few shrubs suffer sooner from drought than does this little Azalea. Plants in small pots are generally the most serviceable for decoration, and with ordinary care they may be kept for many years in good health, with little root-room. By selecting the earliest-forced plants of the previous years for flowering first, this Azalea may be had in blossom from October until May.—James Groom, *Henham*.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Abutilons in Greenhouses.—Abutilon Thompsoni and Boule de Neige assist in brightening up a greenhouse at this season. Thompsoni is as fine as any Croton, and Boule de Neige continues to flower all through the winter months, with a little warmth.—A. H., *Thoresby*.

Hæmanthus coccineus.—It is to be regretted that this fine bulbous plant is not more generally grown than it is. It bears a dense globular head of deep crimson-scarlet stellate flowers on a speckled scape from 15 or 18 inches in height, and has dark green strap-shaped foliage. It succeeds in a moderate temperature and is even more effective than Nerine Fothergilli, another neglected bulbous plant of easy culture and effective appearance.—B.

Saving Fuchsia Seeds.—When the seed pods are thoroughly ripened, partly dry them in the sun, after which cut them in halves and quarters with a moderately sharp knife, and minutely examine each part; the old self-coloured varieties produce seed very freely, but the choice kinds very sparingly, particularly the light varieties. An abundance of hollow seed will be found; good plump seed is about half the size of that of the Pansy, and easily distinguished and picked out.—H. C.

Packing Exotic Ferns.—It may interest you to know that I have just received some Ferns from New Zealand, packed merely in common earth in a box, which, after a journey of four months in the hold of a sailing vessel with heated grain, arrived in perfect condition, with the exception of one or two very small tufted sorts. Amongst those in the best condition were Adiantums and Todeas. I mention this as its seems a general idea that they require careful and elaborate packing.—E.

HARDY FLOWERS AND THE WILD GARDEN IN WINTER.

The feelings of a country gentleman during the chill autumnal days are a mixture of pleasure and regret—of pleasure, as a sportsman; and of regret, as a gardener, at seeing his favourite flowers disappear one by one. When hunting or shooting, he has no time to think of his flowers; but, on a "bye day," when strolling by habit through his garden, he is sadly reminded that he has months to wait before again seeing its usual brightness there. He knows, however, that the inhabitants of his hardy border are not in reality dead, and that they will, in due time, come out in their old splendour without care or expense being bestowed on them. I do not think the "bedding-out" enthusiast can by any means say the same thing, as the latter has perhaps eight months to wait before his flush of bloom will be ready to light up the bare earth of the beds devoted to his hobby. There are, however, some of the hardy plants to which (in inland districts, at all events) it is safer to afford some slight protection about the roots and collars. A very simple way of doing this is to place a small quantity of sifted coal-ashes round the collars of any plant the perfect hardiness of which we may be doubtful of; and, as ashes are not very sightly in the garden, to put on them a coating of fine soil. Many rather tender subjects can be easily saved in this manner, and though cut down to the ground, will spring up again in their proper season. In reality, what we suffer from most is not cold, but damp; and I feel confident that, by some simple contrivance of keeping off the wet, we should be able to preserve many subjects—especially the half-hardy bulbs—throughout the winter months. I intend planting out a variety of bulbs this winter, which are generally directed to be taken up and kept dry, in a special border, with some arrangement to prevent the rain getting to them, and will let your readers know the result. In the wild garden the fallen stems and leaves of the plants themselves should be left where they are, being, no doubt, Nature's protection for them. It is desirable, however, even there to afford a few subjects some extra covering, and nothing is better than a barrowful of decayed litter, or even a pile of dead leaves put on, in the form of a cone, with a Fir bough or two, to prevent them being blown about by the wind. The amount of covering required depends a great deal on the nature of the sub-soil; the better the drainage the less protection required. Such plants as the Cannas, Arundo Donax variegata, A. conspicua, Aralias, the better kinds of Gladioli when left in the ground (we never take them up here), and, perhaps, the Fuchsias, should be treated in this manner. We often see tufts of Pampas Grass with the long leaves tied together, as ladies hair used to be in olden times, and presenting a ludicrous appearance; this can hardly be necessary in most places, as their own fallen plumes and stems afford sufficient protection. In the mixed border we must of course remove all dead and decaying matter, as, in this way, we must make up in tidiness what is wanting in colour, and now-a-days the frosts run so far into the summer months, that the want of order for nearly half the year would be unendurable. I find that the most satisfactory way of affording the mixed borders the nutriment they are deprived of in the shape of decaying leaves, is to fork them over to the depth of a couple of inches or so, covering them with about the same depth of leaf mould. The rain soon washes the new soil into the ground, whereas, if the mould is only put on to the surface of the dried up borders, without the previous forking, it will have little or no effect. We also do away with the necessity of digging amongst our plants, which should at all times be avoided, excepting when it is necessary to restrain some of the more rampant subjects within bounds. I have no doubt that many have been constantly annoyed when tying their flowers to stakes to find for how short a time the old strips of matting would last. A little wet rotted it in a few days, and it seldom stood the test of a high wind. To those who do not know it I would recommend an immense improvement on the matting in the shape of a Grass sold as Roffia Grass. It only requires a good soaking in water to become supple enough to be easily tied, and is strong enough to withstand almost any amount of high wind. It has the advantage of being very cheap, and is certainly one of the greatest boons presented to gardeners for many years.

Oxon.

Rose Jelly.—In your number of the 13th of November (see p. 426), "W. T. T." asks for a receipt for Rose-hip jelly. Here is a Swiss receipt, which has been employed here for many years; the jelly is excellent, delicate in flavour, and something like guava. Pick the Hips (those of the Dog Rose, not the Sweetbriar, the latter being useless), which should be fully ripe and soft; put them into cold water, well covered, and boil them until they are quite soft; then turn them into a jelly-bag, and let them drip. Use weight for weight of sugar, and boil twenty minutes.—Salmoniceps.

NEW CHRYSANTHEMUMS.

Of these the finest examples I have seen this year are the following, viz.:—Golden George Glenny—A plant with over a hundred perfect blooms upon it; this is one of the many sports from Mrs. Rundle, and is a very valuable addition to kinds suitable for exhibition, either in the shape of cut blooms, or in that of a trained specimen plant. Canary-yellow Cherub—This a pure canary, or primrose-yellow, is a sport from Cherub; it is a finely-built flower, of perfect form, and will make a good kind for exhibition in a cut state. Mrs. Walter Butters—This is a sport from Princess Beatrice; in colour it is a reddish-tinted-brown, and amber below; its form is exactly that of Princess Beatrice; it will make a distinct flower for a stand. Of the newer Pompones, most of which are fimbriated, and of very mixed colours, I have selected the following six as being the very best, viz., Le Parnasse, rose, yellow, and lilac; Lucrèce, orange and brown, with golden tips; Carminatum, Indian red with yellow tips; Marc Aurèle, orange and red, shaded; Monsieur Ulrich, purple, with white tips; and Monsieur Chevreaul, rosy-lilac, tipped with yellow. There is also a very beautiful old variety, pure white, and fimbriated, named Marabout, which ought to be associated with these, as the new whites are either poor in flower or not pure in colour. I must not forget two little recurved Pompones named Amphilla and Fabiola. Of these, the former is a bright scarlet-crimson, with very fine habit, and the brightest in colour I have ever seen; the latter is pale lilac, of fine form, and a capital companion to the other for exhibition purposes. Capitaine Nema is a fine bright rosy-purple, and inclined to be incurved. It has a good habit, and is a free bloomer. Malte Brun is a light pink, half incurved, very chaste, and distinct. Madame Rival Verne has broad reflexed white petals, of which nearly half of those in the centre are yellow. It is a very distinct kind, and a free bloomer.

R. H. B.

DINNER-TABLE DECORATIONS.

The ever-increasing demand for change and variety in these causes our gardens, shrubberies, and even hedgerows to be laid under contribution to supply the necessary material. Till recently, nothing but the rarest exotics was considered good enough, irrespective of their adaptability to the end in view; but now that the taste for beautiful and graceful foliage has superseded the love for flaming colours, a corresponding improvement may be noted in table decoration. The subjects available when autumn tints are on the trees are almost endless in variety—and, not only then, but at any season, a rich effect may be produced with leaves alone, either native or exotic. When designs or figures for fixing the flowers or foliage in sand are employed, I decidedly give the preference to those made of tin or zinc, as all those in glass that I have seen have been much too deep, as if the glass, and not the flowers, was the object to be seen. A very popular form of flat decoration is the flat plateau, made of stout zinc and filled with sand, raised according to taste, and covered with beds or borders of flowers or foliage. This has a rich and striking effect, but requires a large quantity of flowers; and, for a distinct change, a dense bed of Lycopodium denticulatum, with small graceful Palms rising above it, has a fresh and verdant appearance. Another variation may consist of a miniature representation of the carpet bedding now so popular in summer gardening, many of the subjects employed for that purpose being equally useful in table ornamentation. For an edging to flat decoration in sand, I find single sprays of Arbor-vitæ or Cupressus Lawsoniana preferable to Ferns, and they last for a longer period without flagging. The plants used in conjunction with these decorations cannot always be led through the table; and I consider they look best in silver or gilt vases, as a plant springing through the cloth without any visible means of support looks unnatural, and, therefore, unsatisfactory. A good table plant should have a light and graceful head of foliage, and be in a small pot, which should fit into a vase of graceful outline, the surface being covered with fresh green Moss. Croton angustifolium is a good type of plant for this purpose, where one or two plants are required, while, where epergnes are used as central objects, Ferns, Lycopods, and trailing plants may be blended together with excellent effect. Associated with almost any of these forms may be a single specimen-glass to each guest, with a choice flower or button-hole bouquet in it; if the form of glass can be varied on successive nights so much the better.

J. Groom.

Henham.

Orchis Comperiana.—A day or two since, I was turning over a volume or two of "Reichenbach's Icones," in the house of a friend, and was much struck with the beauty of this Orchis, which is a native of Asia Minor, and which should be introduced to cultivation. It is by far the handsomest of the many lovely species figured in this beautiful and fascinating work.—H. Harpur Crewe, *Drayton-Beauchamp Rectory, Tring.*

TREES AND SHRUBS.

SEA-COAST VEGETATION.

If a native of Ramsgate or Margate were desired to state what addition he would like to have made to his stock of evergreen shrubs, he would probably reply a few more Euonymuses. E. japonicus is master of the situation at these two well-known watering places. Both in the towns and on the chalky cliffs, in pots and in tubs, it may be seen trained, clipped, and cut into various forms, and sometimes allowed to grow in unrestricted luxuriance. If a resident in Ramsgate makes up his mind to have an evergreen in his garden, he plants a Euonymus; if two are required he selects a Sweet Bay; and, in the event of a third addition being made, the choice will be pretty evenly balanced between a Laurustinus and another Euonymus. The prevalence of these three shrubs, combined with the almost entire absence of Conifers, and the paucity of deciduous trees, gives the gardens in this part of Kent a monotonous appearance. It is an old saying that we should not knock down the bridge that carries us safely over the water; and Euonymus, Sweet Bay, and Laurustinus, being found to thrive better than most plants on the chalky sub-soil of this district, they are naturally great favourites. To those who are familiar with the light feathery outlines produced by a mixture of Coniferous and Deciduous trees, masses of Bays and Euonymuses, with here and there an occasional Evergreen Oak and Phillyrea, have a singular appearance. One square in Ramsgate presented a striking illustration of this style of planting. In this, many of the Bays measured upwards of 2 feet round the stem, at 3 feet from the ground, and were from 20 to 30 feet in height. These were associated with large masses of Euonymuses, both green and silver variegated, Laurustinus, and Cotoneaster, the latter forming the under-growth. Between the deep green glossy foliage of these shrubs might also occasionally be seen a Fuchsia, or plant of Veronica Andersonii. Laurustinus and Euonymus mixed and kept clipped make neat little hedges, which seem to defy the sea breeze. In front of the Granville Hotel, on the East Cliff, and within 15 yards of the sea, may be found a plantation of Euonymus, and, though fully exposed to the utmost fury of the wind from all quarters, they seem to be thriving admirably, being well furnished to the ground with healthy foliage. Walnut trees grow to a great size in this neighbourhood, and this year they were loaded with fruit. At Minster, which is about 5 miles from Ramsgate, I was informed that a Walnut tree exists, under which 300 people could comfortably dine, and from Minster, which is one of the most fertile spots in the Isle of Thanet, is obtained the greater part of the fruit, which supplies the Ramsgate and Margate markets. In these markets Figs and Pears are remarkably cheap and good. From Ramsgate to Sandwich the railway passes through a very fertile tract of country, Hop gardens and orchards being especially conspicuous. Sandwich, though presenting no remarkable features in a horticultural point of view, is interesting on account of its extreme antiquity and the peculiar position in which it is now placed by the gradual receding of the sea on that coast. Once it came nearly to its walls; now, two miles of grazing ground intervene between them and high-water mark. The old moat, which surrounds it, is dry, and the sides, as well as the ramparts, are planted with evergreen and deciduous shrubs and trees. The whole is neatly kept, and forms a pleasant promenade round the town. A very fine specimen of Pyracantha here formed a striking object; it was trained over the front of a rather ancient-looking dwelling, and covered a space of about 20 feet in height, and 50 feet in width, the whole plant being in robust health and loaded with huge heads of bright scarlet berries. The effect in a narrow street, surrounded by dingy-looking buildings was peculiarly pleasing, and led me to think that many such localities might be enlivened during the dull winter months by the use of this rather too much neglected plant. From Sandwich to Deal we pass through an extensive tract of low pasture land, through which flows the river Stour, and which is interspersed by innumerable Hawthorn trees, so completely covered with Haws that, from a distance, they have the appearance of being clothed with dull red foliage. On the pebbly beach, between Deal and Walmer, I noticed, in abundance, the yellow-horned Poppy (Glaucium luteum). Sedum acre, too, in many places carpets the soil, and Centranthus ruber grows on the edge of the cliffs, the precipitous sides of which are dotted with wild Cabbage. Above Walmer, the Traveller's Ivy (Clematis vitalba) and the Wayfaring tree (Viburnum Lantana) grow abundantly in the hedge-rows. On the old castle of Deal, Mars has surrendered to Pomona; for its walls are entirely covered with fruit trees, which are planted in the bed of the moat, and here and there, in the angles, are clumps of Figs. On each side of the drawbridge stands a fine Pear tree, trained to and completely clothing a considerable extent of wall; these were, at the time of my visit, bearing a heavy crop of handsome fruit. The chalky hills and woody valleys about Dover must, in the spring of the year, I should imagine, yield a rich harvest of rare wild plants. Golden Rod (Solidago virga-aurea) and Statice spathulata are two of the latest-blooming plants found on the cliffs, on which Plantago Coronopus is also abundant. The Sea Buckthorn (Hippophae rhamnoides) is found on the shore, as well as Euonymus europæus and the common Privet. The Samphire (Crithmum maritimum), too, grows abundantly in many places; Iris fœtidissima is found more inland in hedgerows, in company with the black Bryony (Tamus communis). I noticed, also, several of the rarer kinds of Geraniums, as well as other interesting plants. John Cornhill.

Byfleet.

The Douglas Fir a Good Substitute for Larch.—This is the best of all the Spruce tribe; but, like the rest of them, it should be planted in tolerably good soil, and in a somewhat sheltered position. When planted in poor land, or exposed plains, it loses its beautiful colour, and the leading shoot is very liable to die back. In suitable situations, it is a most vigorous grower; and there is every probability of its proving one of the fastest timber-producing trees of good quality, that we have. With Pinus Laricio for high-lying and exposed plains, and Abies Douglasii for hill sides and valleys, planters will find a good substitute for the Larch on land where the latter has been affected with disease.—George Berry, *Longleat.*

Acorns Poisonous.—I have known several instances of cattle being killed from eating Acorns, and this season a farmer near here has lost five young cattle in that way. A few would probably not kill cattle, but they are best without any, as they soon show their effects on their coats. Care should be taken when the Acorns get ripe and fall (and after much wind they fall thickly) to have them immediately raked or picked up out of the way of cattle. They also injure pigs when shut up—that is, if they eat too many of them. A pint a day is quite sufficient, but they are best without any.—A. Macfarlane, *Great Tew.*

NOTES AND QUESTIONS ON TREES AND SHRUBS.

Golden Yew on Common Yew Hedges.—Grafting the Golden Yew here and there on shoots allowed to grow up from hedges of the common Yew is frequently practised in the great Surrey nurseries. The practice deserves adoption in private gardens.—V. E. R.

Poplar Wood Incombustible.—Many despise Poplar as a timber, but it has one golden property—it will not burn. Some years ago a factory at Nottingham took fire on the second floor, and burnt to the top furiously, but not downwards; although the floors lay a yard thick with hot clinkers and melted machinery, yet it did not get downwards, because the floors were of Poplar.—A. D.

Transplanting Trees in Full Leaf.—Mr. McNab, Botanic Garden, Edinburgh, makes a curious observation in reference to transplanting large specimens of the genus Sorbus. It is, that if moved when leafless they invariably die. To transplant them with perfect safety the operation must be performed when they are in full leaf, in July or August.

Gigantic Golden Chestnuts.—At a recent meeting of the California Academy of Natural Sciences, Dr. Kellogg said he had just returned from under the shadow of the finest evergreens ever grown. He hoped the secretary would record the fact, that there were in California Golden Chestnut trees (Castanea chrysophylla) from 100 to 200 feet high, 4 to 6 feet in diameter, and with an unbranched trunk of from 50 to 70 feet.

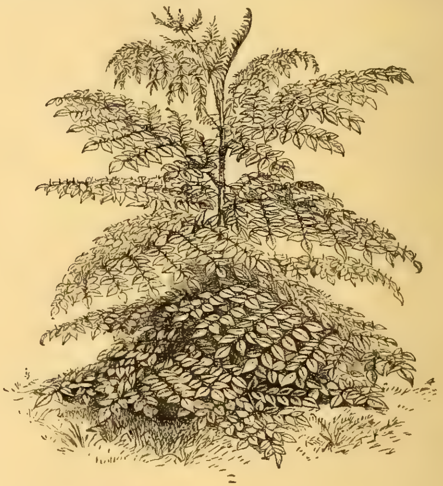
Fruit on Aucubas.—I find that by planting a few of the male variety (Aucuba mascula) amongst the female variety, which we have long had in our gardens, they set freely without artificial fertilisation. Last year I planted several of the new varieties in a new shrubbery here, and I find that all the female kinds are now covered with berries, although some of them are at a considerable distance from the male plants.—J. G.

The Age of Trees.—The following table, based on an examination of the annual concentric layers of the oldest known trees, appears in a recent number of the "Illustration Horticole:"—Judas tree, 300 years; common Elm, 335; common Ivy, 450; common Maple, 516; White Birch, 576; Orange tree, 630; Evergreen Cypress, 800; common Olive, 800; Walnut, 900; Oriental Plane, 1,000; common Lime, 1,100; common Fir, 1,200; common Oak, 1,500; Cedar of Lebanon, 2,000; Taxodium distichum, 3,000; Yew, 3,200.

A GRACEFUL HARDY SHRUB.

(ARALIA CANESCENS.)

In the size and beauty of its leaves this is far before many of the so-called fine-foliaged plants that are carefully cultivated in our hothouses at a perpetual expense. The specimen of this species here figured was one of a batch of young plants growing in the Fulham Nurseries. The engraving falls far short of fully illustrating the beauty of the plant. It is easy to imagine what a graceful effect may be realised by such an object, either isolated on the turf near the edge of a shrubbery or grouped with subjects of similar character. Success with this plant may be secured by, first, selecting a sheltered and warm position, so that its noble leaves may be well developed, and not lacerated by storms; secondly, by giving it a deep, free, and thoroughly-drained soil; and, thirdly, by confining it, as a rule, to a single stem, so that the vigour of the individual may not be wasted in several branches. The effect of a plant kept to a single stem, as shown in our illustration, is always much superior to that of a branched one. Young plants present this aspect naturally; but old ones may be cut down, when they will shoot vigorously. As regards position, it is admirably suited for isolation, or grouping with other subjects of a similar character. It is commonly known in gardens as Aralia japonica, and it sometimes attains a height of 18 feet. R. W.



Aralia canescens (japonica—Hort.).

Erica vagans.—The "Pall Mall Gazette" for October 18th has the following note:—The author of an article which was published some days ago under the title of "West Cornish Moors and Miners," writes to us:—"I mentioned in my article that the so-called 'Cornish Heath' only grows on the serpentine. A friend tells me, in confirmation of this, that he discovered a patch of serpentine on Connor Downs, between Hayle and Redruth, from finding Erica vagans, by the side of a newly-made road along which he was riding. The Heath was growing in soil so decomposed as to be unrecognisable; but a little search showed that the fence was built of serpentine, of which a small quarry had been opened lower down. My friend mentioned his discovery to the late Mr. Carne, the founder of the Penzance Geological Museum. 'Why, it can't be,' he remarked. 'We've been over all that country and found nothing of the sort there,' 'Nor should I, but that botany helped me,' was the reply. This was in 1836. The only other known patch of serpentine is Colrennic Cairn at Mehenist, just east of Liskeard, where the railway is cut through serpentine rock. Here the 'Cornish Heath' grows profusely. Most people think there is no serpentine except at the Lizard."

COLLECTING AND STORING ICE.

Frosty nights begin to remind us that the season is at hand for making preparations to refill ice-houses. The proverbial fickleness and uncertainty of the English climate render the season of ice-getting a time of some anxiety to those who are held responsible for securing a supply of a luxury that has of late become almost an article of necessity in large establishments. For ice to keep well when collected, it is of the greatest importance that plenty of good clean straw should be used. This should be got in readiness by having it tied in small bundles that measure about 9 inches through, and are used for the purpose of lining the walls of the house, and for covering the ice-well. The main point is to have the house thoroughly air-tight, for, unless it is well-lined, a cavity is sure to occur between the ice and the brickwork; and, when this takes place, it melts at a rapid rate. Many, although in possession of good houses, fail to keep ice throughout the year, from not using a sufficiency of straw, probably thinking that, because they have a larger supply, they can afford to lose some of it, and yet have sufficient for use as long as it is wanted. This, however, will not prove to be the case, as the whole art of keeping ice is to preserve it from the atmosphere; and the only effectual means of doing this is to pack it well in straw. When this is not done, a space is left between the ice and the brickwork, and the whole body of air surrounding the ice is changed every time the house is opened. This, of course, has a very wasting effect on the ice, as the volume of warm air shut in every time ice is removed is some time in being cooled down. By the use of small bundles of straw, however, it can be done with the greatest regularity; much more so than when loose straw is used, as the pressure of the ice reduces the thickness of the bundles forming the lining to about 6 inches. Till I adopted this plan, I always had a difficulty in having the house regularly lined, as it generally happened that the loose straw which I then used would be bulky in one part and not sufficient in others, on account of getting displaced while filling the house. I may just observe that the bundles of straw are placed on end up the wall of the house, as they remain best in that position. The ice should be well smashed up by using long-handled mallets made for the purpose. This should be done before pushing it into the well of the house, as then it can be done more readily, and a man or two will be able to ram it well round the sides of the house as fast as it can be delivered to them. Sufficient room should be left for plenty of straw to be placed on the top. This should be thrust in as tightly as possible, and the passages filled with the same material. In taking ice out for use when wanted, the outer door of the house should always be kept closed while the inner one is open, so as to prevent the external air from entering. Those not having the convenience of an ice-house may easily have a supply by forming a good large stack, which, if properly made and covered, will last through the summer months. This should be formed on the surface of the ground, and as near the pond as possible, so as to save labour in carting. First of all, a rough circle, of about 15 feet in diameter, should be marked out, round which are placed hurdles to support the sides of the stack. These should be kept in position by driving some large stakes on the outside, so as to withstand the pressure of ice till the mass has time to freeze together. The inside of the hurdles should then be lined with straw, Bracken, leaves, or any dry littery stuff that may be at hand. Whatever is used should be placed at least a yard thick, as less than that would not exclude the air. This will allow room for a stack about 9 feet through, which, if carried 7 or 8 feet high, will form a large body of ice. The bottom of the stack should have a few rough bushes laid over it, and on these some clean straw, so as to secure free drainage. In forming the stack, the ice should be well rammed and broken, much in the same way as when filling the house. As soon as sufficient is got together, the whole should be covered in with a good thick layer of dry litter or Brakes, over which a coating of straw should be placed, so as to form a rough kind of thatching, to keep out the wet. A stack made as above on the 24th of last December afforded us a supply till the second week in September. J. Sheppard.

Ivy in Dwelling Houses.—Is it unhealthy? My medical adviser pronounces Ivy to be exceedingly unhealthy, I shall, therefore be glad if anyone will say whether it is so or not. My house is three-storied, with windows at the back of, or fronting, each landing of the staircase. I planted the small Ivy, and the common large-leaved Irish Ivy in pots, and placed them on the first landing window-sill, facing the west. The Ivy grew rapidly, and I trained it up cords until the window was nearly covered, and it had a very pretty effect. In course of time I led it along the ceiling of the landing, and up the ceiling of the next flight of stairs. As soon as the Irish variety got well up towards the eastern window of the second landing it grew very rapidly, and I have no doubt that, in course of time, it would have grown up to the top of the house, and my staircase ceilings would have been clad with hanging Ivy, producing a charming effect. One day, however, my medical man (a medical officer of health) calling, strongly denounced the whole proceeding, stating that the odour of it, which, in my airy staircase seemed to me harmless, was highly injurious to the inmates of the house. Upon this advice I have, unwillingly, removed the whole, "root and branch." Was I right?—Fredk. R. Wilson, *Alnwick.*

Physostegia (Dracocephalum) imbricata.—This, which is one of the Labiatæ family, is a very tall and handsome herbaceous perennial, 7 or 8 feet in height when grown in a warm sandy loam. The flowers, which are produced in August, are light purple, with spots of the same colour on the lower lip. It should be placed in a position sheltered from the wind, as I have often found the stems broken in two by even a moderate breeze, and that too when they have been carefully staked. There are two or three other species, viz., P. denticulata, with flowers of a very rosy hue, and P. virginiana, with pinkish flowers in racemes, and which grows about 4 feet high. P. speciosa, generally known as Dracocephalum speciosum, blooms a little earlier and grows to a height of 2 feet, is perfectly hardy and well worthy a place in the mixed border. Among other Dracocephalums, there are still a few lavender-blue blossoms on D. argunense, which has a prostrate rather than an erect habit, and grows freely in a warm sandy loam.—Oxon.

The New Double Poinsettia pulcherrima.—The new double Poinsettia has at last flowered in Europe, Messrs. Veitch & Sons, being the fortunate possessors of this singular novelty. We had an opportunity of seeing it for the first time on Thursday evening last, and are enabled to state that it fully comes up to our preconceived notions of its excellence. Instead of the bracts being in a single head, and spreading out in the same plan as in the case of the old form, in the double kind, they are gathered into clusters which fill up the centre so that the whole inflorescence is full and rosette-like, and the colour a vivid scarlet. One head, and that not fully developed, measured fully 15 inches in diameter, across the lower bracts. The plant evidently has a robust constitution, the specimens of it which we saw being clothed to the base with fresh healthy foliage. Readers of The Garden will remember that in August, 1873 (see p. 143), we drew attention to this new and beautiful form of the Poinsettia as having been introduced to cultivation by M. Benedict Roezl, who had found it in May of that year, "in a small Indian village in the Mexican state of Guerrero," and which he then forebore to describe, because, as he modestly observed, no botanist or florist would believe his description of so beautiful a plant.

Cure for Sickly Pot Plants.—The "Bulletin Horticole de Soissons," on the authority of M. Willermoz, gives the following cure for sickly pot plants, which he states has been pursued for some years with unfailing success by M. Lucas, of Hohenheim. It is recommended in the case of plants which have become sickly through over watering, planting too deeply, &c. Amongst the plants so treated were Palms, Roses, Ficus elastica, and others. Instead of changing the soil it is well stirred and soaked with water, heated to a temperature of 133° to 144° (Fahr.), until it runs off freely from the bottom of the pots. After a few days the sickly plants recover their original look of health and vigour, and begin to grow again.

—— Doctor Acland has published (Oxford and London, James Parker & Co.), in pamphlet form, his letter to Dr. Hooker, in which he pleads for the formation of a garden for Oxford more in accordance with modern wants, and sufficiently large to represent the many important families of plants introduced since the old and small Botanic Gardens were designed.

—— Tradesmen in Covent Garden are complaining that the barrels of Newtown Pippins which now reach the London market are dishonestly packed, *i.e.,* contain small and very inferior fruit towards the centre. This used not to be the case; but good brands, the same size throughout, have for the present ceased to come to the London market. Growers cannot learn too soon that this is likely to injure their trade as far as Covent Garden is concerned.

—— The Rev. H. T. Ellacombe, of Clyst St. George, from whom we have the pleasure of publishing a letter this week, is perhaps the oldest remaining amongst us of the old school of cultivators of hardy flowers in England. He had, we believe, opened relations with the authorities of the Paris Garden of Plants so long ago as the year 1814. We have lately seen the catalogues of collections formed by him when Vicar of Bitton. These were written about forty-five years ago, and enumerate a richer collection than many botanic gardens now possess. Happily, his son, the present Vicar of Bitton, has the same tastes, and the collection still remains among the richest and most interesting in the land.

THE ARRANGEMENT OF BOTANIC GARDENS.

In your impression of last week (p. 470) there appeared a short article thus headed; after reading it as attentively as possible, I could not find the slightest clue as to what sort of arrangement the writer intended to recommend; perhaps he would give us his views. For instance, if he had 100 species of the Figwort family how would he arrange them; would he put them in a round bed or in a square bed, or in a bed with an irregular outline; or how would he distribute the numerous families of the vegetable kingdom over the surface of his artistic garden, as he seems to repudiate the word systematic altogether, as far as the modern botanic garden is concerned? K.

[Our correspondent "K." does not give his name and address. Nevertheless, we deviate from our rule of not noticing anonymous letters, and answer him, lest he should suppose there is no answer to his question. In cases where, in a national or botanical garden it is for any purpose considered needful to arrange the species of such a family as that to which he alludes, viz., the Scrophulariaceæ together, there is only one way out of the difficulty, and that is, to make a separate department for this kind of classification, which should be cut off from the central portions, or those where the vegetation is arranged in a natural and picturesque manner. Covering the open and important positions in a botanic garden with plants like those named by "K.," all the species being arranged together, is the most effective way to make the garden monotonous to all and offensive to many. It is the opposite of Nature's plan of contrast and variety in stature, form, or colour. This is the plan which the true gardener must follow to get the noblest and most satisfying effects in gardens. In botanic gardens of very limited extent it is only possible to get space to show the plants arranged in a systematic manner; and hence our reason for supporting Dr. Acland's plea for a new garden for Oxford.]

Tritomas and Roses in the Snow.—We have just now in the garden here that which is to us a curiosity, though it may be common—a plant of Tritoma Uvaria, the lesser variety, *i.e.*, glaucescens, with three spikes of its brilliant flowers, glowing strangely and beautifully amid the snow-flame flowers, which, like the clowns in the pantomime, never lose their erubescence. And we have, on this eighth day of December, upon our chancel wall, a bloom of Gloire de Dijon, respectable, both as to colour and symmetry, even in the eyes of such a rigid Rosarian as—Yours perennially, S. Reynolds Hole, *Caunton Manor, Newark.*

Protecting Rose Trees from Frost.—In the case of standard trees on lawns, the best and neatest protection with which I am acquainted, is hay-bands wrapped about the "worked" part to about 6 inches in height. If only that amount of sound wood can be saved, it is sufficient for the purpose of producing a good head the following summer. Those who protected the roots of their dwarf Rose trees with dry Bracken, straw, and cocoa-nut fibre in good time, need apprehend no bad results from frost as yet, as any of these materials properly applied, will resist frosts of much greater severity than any we have had this season. In Yorkshire a good deal of snow has fallen, and the thermometer varies at night from 5° to 16° below freezing-point.—Henry Taylor.

Are Old Fruit Trees worth Saving?—My experience leads me to say—"Never cut down an old tree unless it is quite dead." I have many large old fruit trees, of which some twenty or thirty were transplanted twenty years ago. All of them were grafted with other sorts of Apples, and, with the exception of one which died, all are doing well, and are fine trees. I have also several espalier Apple trees, some of which are a hundred years old, and, owing to their having been grafted afresh, have done well, more especially one—an old Pomme Roy. This tree having exhibited symptoms of decay, and having also become afflicted with American blight, was, some seven or eight years ago, grafted in two places, an operation which has given it so much new life and vigour, that it has this season borne twelve bushels of Apples of the Pomme Roy kind, and one bushel on the grafts, and this from an espalier more than a hundred years old! Therefore, an orchard of old trees might be kept for many generations in full flourishing and fruiting condition, merely by fresh grafting any trees that show syptoms of decay. The new grafts put into the old tree have grown with so much vigour, that three faggots have been removed, yet the space out of which they were cut is hardly visible. We do not, however, as a rule, prune Apple trees here; on the contrary, all things are permitted to grow as they will. The old tree of which I more particularly speak is 60 feet in height, covering the walk, arbour-like, and running its branches through the evergreen shrubs on both sides. On other old trees here the grafts grew quite as vigorously as on the one just alluded to, but they have been partly shortened.—Richard Webb, *Calcot, Reading.*

NOTES AND QUESTIONS—VARIOUS.

Poinsettia pulcherrima in a Pine-stove.—We have just now a row of Poinsettias in full bloom at the back of one of our Pine-stoves, and on some of them the bracts measure 15 inches across. Looked at through the glass, they have a brilliant effect, associated, as they are, with the dark green of the Pine plants.—R. Gilbert, *Burghley.*

Newspaper Protection in Fruit Stores.—Newspapers, laid over Apples stored on shelves in an out-house, are said to keep them safe from frost. Is that the case? Will some of your readers kindly record their experience in reference to this simple and inexpensive way of protecting fruits from frost?—C. W.

Mushroom Failures.—I have twice made an attempt to grow some Mushrooms. On both occasions I got fresh horse manure as a foundation, and dried it according to instructions. But, for some reason or other, I can get no heat in it; there is no fermentation. Will some of your readers kindly inform me how to proceed another time.—D., *Quorn Place, Loughborough.*

White Variety of Linnæa borealis.—This pretty little trailing plant abounds in the mossy Pine woods of the Engadine around Samader, and opens its tiny pink bells abundantly. A snow-white variety occurs near Samader, rivalling in beauty the normal tint and colour. It is grouped among the Caprifoliaceæ, though the drupe is dry and not pulpy, as is usually the case with that group.—P. I., *The Lodge, Hovingham, York.*

Pedicularis sceptrum carolinum.—Whilst looking over a packet of dried plants collected during the past season in Lapland I came upon this magnificent species, with its tall heads of large deep rose-coloured flowers. It is, I believe, not uncommon in Sweden and Lapland. I am at a loss to know why some one has not made an effort to introduce it into cultivation.—H. Harpur Crewe, *Drayton-Beauchamp Rectory, Tring.*

Mazus Pumilio.—This tiny Van Dieman's Land perennial does not rise more than an inch or so above the ground, on which the leaves lie flat. It is by no means a showy plant, and is too inconspicuous for the front row of a mixed border. Its small lilac flowers, with white centres, are shaped somewhat like those of the common Snapdragon, and the plant will do well in any light soil.—Oxon.

The Ethiopian Lily in Water.—Many years ago, I saw a number of strong roots of this Lily put into a 20-inch tub, which was then filled with good soil and submerged about a foot deep in a pond. The result was most successful, as, although the foliage died down each winter, the plants came up again the succeeding spring with renewed vigour, and a finer group of this Calla I have never seen than this was a year or two after submersion.—A.

Crocus byzantinus.—This is, I think, certainly the finest, next to C. speciosus, of all the autumnal species. Its inner circle, of short petticoat petals, separate it from all its congeners; and the dark purple of its blooms has a richness of hue to which no other species can lay claim. Reichenbach, in his "Icones," gives a pure white variety of this beautiful flower. We must not rest till we have got this lovely plant in cultivation.—H. Harpur Crewe, *Drayton-Beauchamp Rectory, Tring.*

Cloth of Gold Roses.—Will some successful Rose grower tell me how to make this Rose blossom. I have two trees of it, one in a greenhouse, and one on a very warm south wall; both grow vigorously, and have very healthy foliage, but the one in the greenhouse has not yet blossomed, and the outdoor plant, which has been well established for eight years, and made a most robust new growth from the root last year, has not had six buds upon it since it was planted. Is it of any use to leave it in so good a position?—A. G.

Ferns for Rooms.—I should like to add to the Ferns recommended by Mr. Groom and "A. B." (see p. 478) Blechnum gracile and Adiantum formosum. These are the best Ferns with which I am acquainted for room decoration. Let the fronds be ripe before putting them in the rooms, and they will last a long time. For a specimen Fern for an entrance hall nothing is better than Pteris tremula. These soaked once a week, say Saturday morning, will remain in good condition for a long time.—N. H. P.

Impatiens repens as a Basket Plant.—This is a pretty little basket plant, with prostrate stems of a thick or succulent character and delicate pink colour, clothed with small heart-shaped leaves, not unlike those of Fuchsia procumbens in form. The flowers are tubular, and of a bright golden-yellow colour, which contrasts strikingly with the delicate stems and fresh green of the leaves. In a warm temperature this makes a very ornate plant, and is well worth attention.—P.

The White Everlasting Pea.—This fine old plant is not nearly so much planted as the coloured form, though the white one is really the better plant of the two. It grows as freely as the old form, often attaining 8 or 9 feet in height, and it is, when in flower, a mass of snowy blossoms. The flowers being borne on long slender stalks are well adapted for cutting, and they may be used along with the choicest exotics. When once planted in good loam it grows like a weed.—W.

Gentiana gelida.—Will "Oxon.," who refers to this species of Gentian in your last issue (p. 482), oblige me by mentioning some marked characteristic, to enable me to distinguish between this plant and G. septemfida? If there is no more real difference between them than can be found in the characters given them, say in "Don's Dictionary" (I am not fortunate enough to possess De Candolle's "Prodromus"), they must resemble each other very closely indeed. G. gelida, if I have the true species, for which I do not vouch, has flowers of a somewhat darker hue, and its habit may be rather more erect than that of G. septemfida; but these are very slight distinctions on which to found a specific character.—W. T.

Road Scrapings as Manure.—Will you kindly inform me as to the properties of road scrapings, *i.e.*, how they will act in the way of manure on garden ground?—A Constant Reader. [The manurial properties of road scrapings are various, according to the character of the materials used in making and mending the roads. On strong soils road scrapings are beneficial in disintegrating them, and rendering them more fertile for the growth of vegetables or fruit trees. If the scrapings are collected from roads on which calcareous materials are used, they are best suited to soils deficient in lime. There are always important manurial properties in scrapings taken from roads on which much traffic occurs.—W. T.]

☞ [Several valued Contributions have been left over from want of room this week. Numerous advertisements also have been crowded out through pressure on our space. Our "Notes of the Week" we have also been obliged to omit.]

No. 213.] SATURDAY, DEC. 18, 1875. [Vol. VIII.

"This is an art
Which does mend nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

NOTICE.

THE GARDEN *of this week contains a Coloured Plate of Xanthoceras sorbifolia; and every week, from the beginning of the New Year, some new or rare flower or fruit, likely to prove of permanent value to our gardens, will be illustrated in a similar manner. While making this addition, all the existing characteristics of* THE GARDEN *will remain as before, or be improved. The Series of Coloured Plates will enable us, in addition to the best class of woodcuts, to include in the Paper every kind of interest sought for in horticultural literature. Subjects for illustration will be most carefully selected, the best fruits, as well as the choicest flowers, being illustrated, while coloured landscape sketches will also be given where they appear more desirable than wood engravings.*

PUBLISHER'S NOTICE.

From Jan. 1, 1876, *the price of* THE GARDEN *will be* 6*d. weekly (through all booksellers and newsvendors, and at the railway bookstalls); the Monthly parts,* 2*s.* 6*d., and the half yearly volumes,* 18*s. Where newsagents or booksellers deliver the paper regularly, flat or unfolded copies may be procured, and readers are advised to obtain the work in that way, so as to prevent injury to the Coloured Plates from folding, and in their way through the post. As, however, many readers in the country cannot get the paper in this manner, it will also be posted regularly, as usual, from the office at the following rates, including postage:—For a year,* 28*s.; for a half year,* 14*s.; for a quarter,* 7*s. Desiring, however, that subscriptions should mostly date from the beginning of the year, and wishing thereby to simplify our accounts, we make a reduction in the case of yearly subsriptions, dating from January* 1*st,* 1876, *which, if paid in advance, will be* 26*s., instead of* 28*s.*

ZONAL PELARGONIUMS IN WINTER.

A CORRESPONDENT in THE GARDEN of December 4th, whose article bears the signature of "W. D. C.," and is headed "Conservatory soft-wooded plants for winter," is evidently unacquainted with the real value of the zonal Pelargonium, or he would not have penned the following in allusion to it. "The three last months of the year are, without doubt, the period when it is found most difficult to secure a brilliant show of flowering plants for the conservatory. Camellias are not yet in full bloom, and it is too late or too damp for zonal Pelargoniums, Achimenes, stove plants, and the mass of summer blooming plants, and forced flowers are scarce until Christmas." Were the writer thoroughly acquainted with the properties of the zonal Pelargonium, he would know it to be the most valuable of all the flowering plants we possess for conservatory decoration, during the last three months of the old, and the first of the new year. For it is at this season that the zonal Pelargonium, if kindly treated, stands out pre-eminently for its beauty and glorious decorative qualities, far surpassing any other flower which we possess. Let your correspondent cultivate the right varieties of the zonal Pelargonium properly; by properly, I mean, let him pot on a number of spring or autumn-struck plants, and during the summer keep them denuded of their flower buds, and standing in an open situation out of doors; put them under glass the first week in September, and in October transfer them to a dry, warm, and well ventilated house, and he will not find them damp off, nor would he have any reason to complain of difficulty in securing a brilliant show of flowering plants during the late autumn and early winter months. The zonal Pelargonium if kept comfortable, will, during these months produce an abundant succession of trusses, with flowers as perfect in form as in the month of June, and possessing colours much more beautiful and brilliant than in summer. At the present time (December 6th) in my house—which is not a conservatory, where plants are grown for display, but a mere factory—the trusses of flower in full perfection are numerous, varying in colour from the most brilliant scarlets, crimsons, maroons, blue purples, down to the softest tints of mauve, rose carmine, pink, and pure white; varieties which in summer produce flowers of the various tints of mauve, during winter change their colour into the most lovely shades of blue-purple, while the whites become purer, and the scarlets, pinks, and crimsons more brilliant. In addition to all their colours being more brilliant than in summer, they appeared still more so as they stood out a few days ago, in contrast to the snow without. I received a note only three days since from a friend residing in the country (to whom I gave some hundred and twenty of my best varieties in the spring), to the following effect, "I must write to tell you how thoroughly your present of Pelargoniums is appreciated by myself and friends, and that my gardener has taken great pains to follow out your instructions, and is not a little proud of the result, and when I tell you that our conservatories are at this time one brilliant mass of colour, produced by your Pelargoniums alone, and gorgeous with beauty, surpassing any display we had during the brightest month of summer from all kinds of flowering plants, you will know that my gardener thoroughly appreciates them too." Then he goes on to describe the various shades of colour which I have already alluded to when speaking of the flowers in my own house. I have lately visited the houses of other friends residing in the country, and witnessed as charming displays of flower and colour in their conservatories as could possibly be wished for. One of them with whom I generally dine on Christmas day, makes it a practice to have the dinner table (which on these occasions is a very long one), decorated from end to end (and most profusely too) with flowers of my seedling Pelargoniums, where, in contrast to the white table cloth, they show themselves off to the greatest advantage; and nothing can be more appropriate for the day than this display of scarlet flowers. If your correspondent would run down any day next week to Mr. Pearson's, of Chilwell, I feel confident he would be shown whole houses (with stages 200 feet in length) filled with the zonal Pelargonium in one mass of splendid flower, and be instructed, too, if he wished, how to produce the like, so that he might never again have to complain of difficulty in decorating his conservatories at this season of the year.

JOHN DENNY.

GROUPING OF CONIFERS A MEANS OF PROTECTION.

THE dotting style of planting is cold, as well as meagre; nevertheless it has its uses; it shows what individual plants can become under difficulties. It also brings individual specimens and species into the sharpest contrast, and thus exhibits their special characteristics in intensified and, one might almost add, exaggerated lights. It has also enabled cultivators to grow the largest number of species and varieties within a given area. Useful as a school, in which something may be learned about trees, it is worse than useless as a means of improving landscape effects; nay, more, the dotting plan mars every landscape on which it is practised. What play of light, or shadow, or repose could be obtained by a series of dots, even though they consisted of trees faultless in form and symmetry? Trees so disposed might be enjoyed as specimens, but a pleasing landscape, consisting of solitary trees, is plainly an impossibility. Not only, however, is the dotting style inimical to landscape beauty, but it is also opposed to cultural perfection. Trees and shrubs are gregarious by nature, and if we compel them to grow in solitary isolation, we must take the consequences; and we do so, in the form of slow and stunted growth in summer, or of ruthless destruction by cold in winter. It is not good for trees to grow alone. Each wind that blows beats against them with full force; the sun and dry air drain each leaf and bough of its rich juices, and, worse than all, the extremes of heat and cold do their worst as regards the exposed roots. This exposure of the roots to direct solar and atmospheric influence is altogether unnatural, and consequently injurious. But there is no need to rest the case on such general statements. It is only necessary to trace the palpable effects of the frost throughout our pleasure grounds, after an exceptionally hard winter, to discover that the single trees are often cut down, while groups of the self-same sorts escape unhurt. The seeming exceptions but confirm the rule.

These exceptional groups, killed or injured, will be found in a lower situation, or a moister locality. In the former the air is colder, as cold air will shoot down valleys into plains, with as much certainty as a stone will roll down hill; in the latter the plants are also more tender. Excessive moisture may help growth, but it hinders maturity, and it is maturity that enables plants to withstand cold. Hence it follows that groups may in such exceptional localities, be cut down, while single trees at a higher level, if more thoroughly matured, may escape. But let the threefold conditions of soil, site, and maturity be alike, and the results will be wholly in favour of the groups. It is necessary, however, to bear in mind that there are "groups and groups." It is not only possible but easy to render groups tender by overcrowding or over-feeding, and when such is the case, groups may be swept away by a frost that will hardly brown the leaves of a solitary tree. It may be well to add, that excessive stimulation, from whatever cause, results in weakness, that leaves the plants more liable to injury from cold than more hardy treatment. But my object is to show that the conditions of growth being the same, Conifers planted in groups endure winters better than those dotted about singly. There is more than one reason for this; the tops are warmer and so are the roots. Planters can scarcely realise the amount of shelter that plants afford each other when planted in groups. I know that in a series of experiments made in Scotland, the absolute difference of temperature between the inside or outside of a wood was much less than might have been supposed. But the difference is one of air in motion or at rest, rather than of absolute superiority or inferiority of temperature. The air around and in a group is, as it were, at rest, compared with that against a single tree. Now air at rest is one of the best known non-conductors of heat; but air in motion steals it from every living or dead substance that it touches with avidity. No doubt this mere motion thwarts, to some extent, the loss of heat by radiation. But, possibly, there is sufficient gentle movement in the air of groups of trees to effect this purpose; while of the warmth and shelter the trees afford each other there can be no doubt whatever. But I am of opinion that the shelter which they afford to each other's roots and their own is of yet greater importance. From many years' observation of the destructive effects of cold, I have arrived at the conclusion that most plants are crippled or killed from the roots upwards, and not from the tops downwards. This is what kills isolated trees. The best roots are often considerably beyond range of the tops. Of course, the feeding roots sweep out, and are, in ever-widening areas, in search of new and better food. Just then, the frost comes down upon them with full power, and either paralyses or kills them. Old roots might be frost proof, but young ones are not. The former deprived of the latter are as useless as detached gas, or water-pipes, cut off from the mains. The collecting roots being crpipled or killed, the main ones become useless, and the tree begins to languish and die, or, in other words, is starved by the amount of cold at its most sensitive extremities, which planting in groups would have protected most effectually. There is another powerful inducement to planting in groups. The dead leaves may be left to protect the roots along with the overshadowing tops. The former, in many cases, would afford the better protection. It is astonishing how many leaves fall off Coniferæ just before winter. At the present moment, whole barrowloads of withered leaves are lying under large plants of Pinus excelsa, P. Sabiniana, P. macrocarpa, and others. Under single trees these are, in most cases, carefully swept or raked up, as so much unsightly litter, or are blown away by the wind. This is simply to lay the most sensitive part of the tree open to the cold. In a state of Nature these dead leaves accumulate to such an extent as to cover the ground under the trees ankle deep. They decompose very slowly, and their texture, form, and non-conducting powers are such that a very thin layer of them forms a frost-proof barrier. I have proved this, and no one who has not noted the power of the tops above and leaves below to resist cold could form a proper estimate of their potency. In group planting there is no temptation to remove the dead leaves, and the wind is powerless to drive them out. Hence trees in groups cannot suffer at their roots, and, as a rule, they winters safely. D. T. Fish.

NOTES OF THE WEEK.

—— Mr. Gulliford, of Central Row, Covent Garden, has some of the curious Vitelotte Potatoes, a small almost sausage-shaped one. It is used abroad for making Potato salads and is also fried, being the favourite kind for these purposes. It is quite distinct in appearance from any grown in England.

—— Busy with fighting as the Spaniards are, they have not ceased to send to our markets those green Melons which, as they arrive, seem as far removed from what we are accustomed to call good Melons as are Turnips. It is worthy of note, however, that a great many of these Melons ripen several weeks after their arrival, and are then often good in quality. They are mostly purchased by foreigners resident in London.

—— There are now Easter Beurré Pears of fair quality in the London market, which have been grown in the neighbourhood of Virginia Water. They are so good as to justify the supposition that this fine fruit deserves more attention in the southern counties. Glou Morçeau and Winter Nélis are the best Pears of the season. The French specimens of Glou Morçeau have been large and beautiful this season; the English ones are smaller, and fortunately come in later, thus forming a succession to the foreign fruit.

—— Perhaps the handsomest Apple now in Covent Garden is the Hollandbury Pippin, of which a basket of fine selected fruit may be seen at Mr. Lewis Solomon's. It keeps well, and is very high in colour.

—— Horseradish is, perhaps, the last garden product that we should expect to see grown out of England for the London market. At the present time it is brought in quantities to Covent Garden from Holland, packed in enormous casks and very good in quality.

—— The Phylloxera has made its appearance in the Vineyards of Tarragona, as well as in different parts of Portugal. A Spanish Agricultural Council are actively considering the best means of arresting its progress.

—— In Mr. Wilson's garden at Weybridge Heath, the Schizostylis coccinea is yet in flower and was so during the snow.

—— In addition to Lettuces, among the products of the Paris market gardens at present seen in our markets are here and there the small and delicate Radishes, the cave-grown Mushrooms, the blanched Lilac, and the blanched Asparagus—the last-named being very expensive.

—— Years ago very good forced Asparagus used to be sent to the London market at this season, and even much earlier, grown and forced by London market-gardeners. This is no longer the case, owing, it is said, to the suburban gardens, in which it was grown, being built upon.

—— Sweet Potatoes are, as usual, on sale in Covent Garden, but no mode of cooking known to us seems to make them agreeable to the majority of palates. The baked mealy Sweet Potatoes that one enjoys so much in the United States, are not, so far as we have observed, ever sent here. The London supply, or some portion of it, comes from Madeira.

—— Physianthus albens and Stauntonia latifolia are both fruiting freely on the buttresses of the old guest-room walls at Battle Abbey, and the Stauntonia, apart from its large egg-shaped fruits, is well worth culture as a choice evergreen wall climber, all along the southern coast, its foliage being bold and distinct and retaining its brilliant green colour all through the winter.

—— Choice Orchid flowers are now very abundant in Covent Garden market, and among others the flowers of those known as cool-house Orchids, or such as have been grown in a cool temperature. Odontoglossums of the Alexandræ or Pescatorei types, Calanthe vestita, Zygopetalum Mackayi, many Oncidiums and Lycastes are found to stand well. It is a noticeable fact that the supply of Orchid flowers is just now almost in excess of the demand.

—— Mr. J. Scott, of Merriott Nurseries, Crewkerne, sends us a fine fruit of Uvedale's St. Germain Pear, weighing 3 lbs. He says of it, "The tree, which bore it, is about twelve years old, and this season had thirty fruits upon it, the smallest 2½ lbs., others the same weight as that sent (3 lbs.), two 3½ lbs. each, and two 3 lbs. 10 ozs. each." This we should call a very remarkable tree and crop, for the trees which produce some of the fine specimens of this kind are usually allowed to bear but very few fruit.

—— As throwing light on the question of Rose culture, Mr. J. Howatt informs us that in America no Roses thrive so well as those growing on their own roots. On its own roots the Hybrid Perpetual is quite hardy and long-lived; Roses worked on the Manetti do not live long unless under careful culture. Standard Roses on the Briar and Manetti, are kept alive with difficulty for more than a few years. With Maréchal Niel, however, nothing can be done except when worked on the Manetti.

BERRY-BEARING PLANTS.

Ornamental-fruited plants in pots are useful, either for the decoration of the conservatory or sitting-room, or for supplying variety in the drawing-room vases. During the dull winter months they are of more than ordinary value, as the brightness of their scarlet, yellow, or purple fruits forms an agreeable contrast to the colours of Chrysanthemums, Salvias, Cyclamens, Primulas, Ericas, and other winter flowers. Scarcely any object is more attractive than healthy Aucubas, covered with glowing scarlet berries, and these are easily to be had on warm soils in sheltered positions. The large Aucubas in the Botanic Gardens, Regent's Park, fruit freely every year, flowering male plants in pots being placed in the centre of the female bushes, just when the plants are in flower, or a day or two before. Some plants, of which the common Butcher's Broom (Ruscus aculeatus) may be cited as an example, bear inconspicuous flowers, hardly perceptible to the naked eye; but their fruits render them as ornamental as the generality of flowering plants. One of the prettiest of these (and one which is now becoming extremely popular for winter decoration) is the scarlet-berried Gladwin (Iris fœtidissima), a plant that grows and fruits well in any warm border or wood in the south of England. Some of the Peonies, again, bear great brown woolly capsules, which, after their showy flowers are past, burst open and reveal their shining black and scarlet berry-like seeds; these are even more ornamental than those of the Gladwin. The golden-fruited Bromeliad (Bromelia sceptrum) is one of the most striking of all stove or warm greenhouse plants that bear ornamental fruit, not even excepting the more prolific of the Granadillas (Passion-flowers), many of which bear very ornamental egg-shaped fruits of a bright golden-yellow or rich purple colour. Bromelias are easily grown, and, like succulents, they require but little attention beyond occasional watering and syringing during hot weather. Any compost seems to suit them; but a good sandy loam with a well-drained bottom is best. The golden-fruited species has long spinose leaves, and bears an erect spike of flowers, which are not particularly ornamental; but they are succeeded by a cluster of golden-yellow fruits, each as large as a pigeon's egg. Collectively, these are very ornamental; and, if kept dry, they will last for several months in perfection. The crimson-fruited Carex (C. baccans) is another plant which produces fruit of an interesting kind. It is a robust-growing Himalayan species, well adapted for pot culture, or for planting out in conservatories. It has gracefully recurved Grass-like leaves, from 18 inches to 2 feet in length, and about half an inch in width. The most ornamental part of the plant, however, is its clustered spikes of deep vermilion or crimson-tinted fruits, which contrast well with the bright green leafy bracts by which they are supported, each little fruit shining as if varnished. When seen on the plant, these clusters are very pretty, and they last for months in perfection; they are also well adapted for cutting and mixing with choice flowers and Ferns. The plant grows well in a pot in fresh sandy loam, if well-drained; it requires a regular and copious supply of water when growing, and should never be allowed to become thoroughly dry at the root. The illustration, which appeared in The Garden (see p. 279, Vol. V.) gives an excellent idea of the habit of the plant; it was taken from one which fruited during the previous winter in the Palm-house at Kew. The cluster of fruit represented is, however, little more than half the size which it attains under good cultivation. The plant is easily propagated, either by means of division or seed, and is well deserving of general cultivation.

The Gladwin (Iris fœtidissima) in fruit.

Ardisias.—These are remarkably pretty pot plants when well cultivated. They are easily propagated by seed, and plants about a foot high bear good crops of berries the second year. Seedlings should be potted off in loam, leaf mould, and sand, and if placed on a shelf near the glass in a moderately warm greenhouse temperature, they make dwarf, vigorous little plants. Even when not in fruit the plant is ornamental, its oblong foliage being of a rich, glossy green colour, elegantly wavy or crenate along the margins. The species common in gardens is A. crenulata, bearing bright scarlet or crimson fruit the size of Peas. There is also a yellow-fruited variety, well worth growing for variety, although not so effective as the normal kind.

Aucubas.—These, when covered with a crop of shining scarlet fruit, make fine winter decorative plants, and they are easily grown. In mild sheltered localities, small bushes in the shrubbery or private nursery may be fertilised, when in flower, by pollen from the male plants, and these can be taken up and potted in the autumn. Plants in pots generally flower more freely than those planted out, and are handier than the latter for fertilising purposes. Large plants in sunny positions outside have a beautiful appearance when fertilised—an operation which is most readily done, either by grafting a male branch into the female tree, or by placing a male plant in flower in proximity to a female one. We have now numerous varieties, both green and variegated, which form noble winter decorative plants. Aucubas, like all other smooth and glossy-leaved plants, do well in towns and smoky districts, simply because they are readily cleansed by every passing shower. Seedling Aucubas are easily raised by sowing the berries, as soon as ripe, in boxes of light sandy earth, and the proportion of male and female plants produced by seeds appears to be nearly equal. The seeds do not all germinate the first year, so one must not be in too great a hurry to see the young plants.

Berberries.—Among other large-growing hardy berry-bearing shrubs, we must not forget the common Arbutus, with orange-scarlet, and Berberis Aquifolium, with bluish-purple fruit in massive clusters. B. vulgaris, having elegant drooping clusters of bright scarlet oblong berries, forms a noble object on the margins of shrubberies in warm sandy soils, during the autumn months. The berries of both the last-mentioned species are often preserved in syrup, or in salt, for garnishing purposes during winter. It is singular that some old specimens of B. vulgaris bear clusters of seedless berries, and if the shoots producing these be grafted on seedlings of the common fertile form, their seedless or abortive characteristics are perpetuated, but suckers from the roots of such trees do not produce seedless fruit. This is a very curious fact, and the practical view of the case is that the seedless fruit is the most valuable for preserves (just as seedless Corinthian Sultana Grapes are valued for Raisins), whilst the ornamental value of the plant is not in the least diminished. Young plants, cultivated in the same manner as Ardisias, are best; old plants lose their bottom foliage, and become "leggy" and unsightly.

Callicarpa purpurea.—This is an old greenhouse plant, well deserving cultivation, although rather straggling in habit. Its shoots are clothed with opposite serrate leaves, and it bears axillary clusters of small purple or amethyst-coloured berries very freely. It may be propagated freely, either by means of seeds or cuttings.

Capsicums.—These, although generally cultivated for culinary purposes, are far from being uninteresting as decorative plants. We have several species in our gardens, all bearing bright scarlet or yellow fruits, which contrast well with their deep green foliage. Care must be taken to syringe these and Solanums freely when growing, in order to keep red spider in check, a pest to the attacks of which they are very liable. At the last meeting of the Royal Horticultural Society three pretty yellow-fruited Capsicums were exhibited, viz., Yellow Gem, a dwarf-habited plant, with large, deep green leaves and bright orange-furrowed, top-shaped fruits; Prince of Wales, a most elegant form, having slender branches, laden with a profusion of small, oblong, sharp-pointed fruits of a pale yellow colour, and a plant that well deserves culture as one of the prettiest of all the yellow-fruited kinds; and C. Princess of Wales, which is the result of a cross between the last-named varieties, and is more robust than either, with fruits 1½ inches long, top-shaped, and furrowed, the colour being intermediate between bright orange and pale yellow. These forms would look well contrasted with well-grown examples of the scarlet-fruited kinds.

Coccosypselum discolor.—This, a slender growing plant with hairy, purple stems and hirsute foliage, is well adapted for stove culture in baskets. The principal attractions possessed by this scandent plant, apart from its graceful habit, are its purple or deep blue berries, which, on well-grown specimens, are freely produced at the axils of the leaves. This plant grows and fruits best in a light sandy soil, to which a little peat earth has been added.

Cotoneasters.—These include some of the finest of all hardy, berry-bearing shrubs for planting along a sunny wall. C. Simmondsii, trained up the front of town houses, along with small green-leaved or gold and silver variegated Ivies, forms a brilliant picture in the autumn and winter, when studded with bright scarlet berries, the latter being very freely produced along its slender branches. This beautiful plant may be grafted on the Quince stock, near the collar, to form close-habited bush or wall specimens, while, if standards are required, grafting on the seedling Hawthorn stock is preferable. C. microphylla, is a well-known small-leaved evergreen species, bearing berries of a deeper crimson, and one of the most useful wall shrubs we have. Trained up the front of a house, or over the porch or balcony, it has a cheerful appearance even in the depth of winter, and is particularly beautiful when the ground is covered with hoar frost or snow. It also does well as a low bush on the lawn, if cut in closely every year. Of this, Lindley says, "Its deep glossy foliage, which no cold will impair, is, when the plant is in blossom, strewed with snow-white flowers, which, reposing on a rich couch of green, have so brilliant an appearance that a poet would compare them to diamonds lying on a bed of emeralds."

Cratægus Pyracantha.—For covering the fronts of town houses, or the side walls of greenhouses or stoves, nothing can be prettier or more effective than this plant, especially if trained among gold, silver, or green-leaved Ivies. It may be freely propagated by means of layers, and small plants from 2 to 3 feet high bear heavy crops of brilliant scarlet berries. Nearly all glossy-leaved plants do well in towns for reasons already stated, and for such purposes this plant is one of the best. It grows and fruits much more freely when grafted near the ground on the Quince stock, and the tall standards succeed on the Hawthorn. The Himalayan species or variety (P. crenulata) is much handsomer as a bright green wall shrub, but its fruits are scarcely so brilliant as those of P. japonica. This plant may also be grafted like the last.

Leucocarpa alata.—If cultivated in a poor sandy soil, and fully exposed to the light, this makes dwarf plants 1 foot to 18 inches in height, and as much through. It has light green foliage and thick winged stems, and, when well grown, bears heavy crops of white berries. If placed in rich soil it is little better than a rank-growing weed; but, treated as above, it gives variety—white-berried plants being rather scarce.

Nertera depressa.—This is one of the smallest and, at the same time, most interesting of all berry-bearing plants. In habit it is very dwarf and spreading, rarely exceeding 1 inch in height; indeed, it may not inaptly be compared to a plant of Selaginella densa, sprinkled with coral beads. The foliage is of a remarkably fresh green colour, the berries being of a brilliant orange-scarlet. It is readily cultivated in a light compost of peat and sand, either in the stove, greenhouse, or under a glass shade or Wardian case in the sitting-room. It is a peculiarity of this plant that it requires a sunny and airy position in a warm Vinery or plant-stove, in order that its fruit may set freely, but directly the little berries are visible it may be placed in a sunny window, or even out of doors in carpet-bedding, during the summer months. Growing in pans, together with fresh green Selaginella, this plant is peculiarly attractive as an indoor decorative plant.

Psychotria cyanococca.—This is a rather leggy plant but always worth having for the sake of its bright blue berries, which are borne in pendent clusters from the naked stems, just below the tufts of bright green leaves. It is a South American plant, introduced to our gardens by Dr. Berthold Seemann, and it has been distributed by Mr. W. Bull. It can be propagated either from berries or cuttings, and grows freely in an ordinary plant stove.

Pernettyas.—These are pretty little shrubs for pot culture; in habit they closely resemble the Cotoneasters; and, like those plants, have deep green glossy foliage, and a rich profusion of berries during the autumn and winter months. For greenhouse, conservatory, or drawing-room decoration they are invaluable, taking the same place indoors that the Cotoneaster occupies outside. I have only seen four species, all of which are beautiful. P. mucronata bears deep crimson berries, something like those of Cotoneaster microphylla in both size and colour. P. microphylla bears immense crops of purple or lilac berries, and is, perhaps, the most distinct and ornamental of the whole group. P. speciosa is very dwarf and compact in its growth, and bears deep crimson berries. P. candida bears large clusters of white or purple-tinted berries, and is a very pretty little procumbent rock-work shrub, perfectly hardy as far north as the Edinburgh Botanic Garden, where it fruits freely during the autumn months. In the last (December) number of the "Botanical Magazine," t. 6,204, a beautiful dark purple-fruited species, from the Andes of Quito, is figured and described under the name of P. Pentlandii.

Rivina (humilis) lævis.—This well-known stove plant bears small inconspicuous white flowers and drooping clusters of shining scarlet berries. Small plants of it in pots are very pretty, or it may be trained up the back wall of a stove, where it will grow, flower, and fruit all the year round, forming an interesting object of permanent beauty. A bright yellow-fruited woolly-leaved species of Rivina was introduced by Bowman a few years ago from South America; and this is quite as effective as the scarlet species. The yellow-berried form is cultivated at Kew under the name of R. lutescens, and forms bushy specimens 2 or 3 feet in height.

Skimmias.—These are dwarf shrubs with broad lanceolate smooth foliage, and bearing clusters of small Holly-like berries. S. oblata and S. japonica are both well adapted for pot culture, and look well all winter in a cool house. These plants do well for pot culture, but I have found them grow best and fruit more freely when planted out in a warm conservatory border.

Solanums.—These are well-known plants, which are easily propagated by means of seeds or cuttings in the spring. Young plants may be planted out in a warm sheltered border in May, and if liberally supplied with water, will make clean, fresh little specimens for decorative purposes during the ensuing winter. They should be carefully lifted and potted in October for removal indoors, and if taken inside and kept in a moist and close atmosphere for a week or so, they will establish themselves and ripen off their bright fruit without losing a leaf. S. capsicastrum and S. pseudo-capsicum are the most useful and effective when well grown, bearing large fruit of a bright, glossy scarlet colour. The Egg plant is very ornamental, and grows well in an ordinary frame or greenhouse. There are both white and purple varieties. S. setaceum is a robust species, often attaining a height of from 6 to 8 feet, and bearing clusters of dull red fruits, each nearly as large as a hen's egg. It is a useful kind for planting in warm or temperate conservatories, where it fruits freely. The Cannibal Tomato (S. anthropophogorum) bears bright scarlet fruits, and one or two other kinds well deserve culture for the beauty and variety of their fruits.

Snowberries.—The common Snowberry bears heavy crops of large pearly-white fruit in some districts, and these cut from the plant and tastefully grouped in bunches, wreaths, or vases, with the fruit-bearing branches of Holly, Berberis, Solanum, Cotoneaster, Cratægus, and the bright-coloured autumnal foliage of the Maple, Berberis, and Oak are valuable for church decorations of all kinds. We have many other fruit-bearing plants, but the above list comprises the best known for decorative purposes during the winter season.

Hollies.—These are too well known to need much comment, but small bushes, 2 to 3 feet high, may be cultivated in pots, or taken up from the outside and potted, when they are useful for the decoration of churches, front halls, conservatories, or even for ordinary apartments during the Christmas season. Some of the variegated forms of Holly are very beautiful, especially when covered with berries, and if budded on green-leaved seedlings, they grow more bushy and fruit more freely than under any other conditions. They also make good stocks for the green-leaved forms, where well-fruited small plants of the latter are wanted, as, being weaker in constitution, and, consequently, in root action than the green kinds, they restrict the growth of the scions and render them more fruitful. Great differences as regards fruitfulness exist among seedlings, a fact known to every one who raises them in quantity, and, where profuse fruit-bearing trees is an object, buds selected from a prolific variety should be worked on other stocks. B.

Skimmia japonica.

Effects of Inundation on Trees and Shrubs.—In the inundations which occurred at Toulouse in June last, many plants were covered with water for days. Those which were able to withstand the current, and were not uprooted, have not suffered; others covered with wet mud about 5 inches in thickness until July 15, have suffered very seriously. The following plants died, even without having been much submerged:—Almonds, Acacias, Laurustinus, Privets, Box, Mahonias, Service trees, Cherry trees, and Coniferous trees. Hawthorns, Pear and Apple trees, Chestnuts, Thujas, Silver Birches, Catalpas, &c., which were covered with water for ten days, have not suffered much; but those from whose base the bed of the mud, 10 inches deep, could not be removed, perish every day. Poplars and Weeping Willows have not suffered, and are striking out roots from the buried trunk. Neither have the Plane trees, Alder, young Elms, Celtis, or Catalpas suffered much. Almonds, Cherries, Cytisus, Service trees, Paulownias, Pteleas, &c., many Peach trees, Caraganas, are mostly lost; young Pear and Apple trees perished in great numbers. Pears grafted two years ago on the Quince do not appear to have suffered much. The greater part of the evergreens and some Conifers are losing their leaves up to the level of the flood. A collection of Cacti and some Euphorbiaceæ remained under water for four days without suffering. This should be instructive to all who contemplate raising nursery stock in positions liable to floods.

TREES AND SHRUBS.

HOW TO PLANT DECIDUOUS TREES.

The best time for planting is when trees and shrubs are dormant, that is, after they have made their season's growth and before they have begun to start afresh. Deciduous trees speak for themselves; when their leaves have fallen they may be said to be at rest, and they should be transplanted before the buds have begun to swell, not that there is much mischief in a little delay, but the proper time is before the buds have become excited. The next point is to take up the tree with every fibre, if possible, undamaged, and more care is required to do this than many think proper to bestow upon it. I have seen valuable trees literally torn up by the roots in some nurseries because the men would not take the trouble to lift them properly. How, therefore, can such trees be expected to thrive for at least a season or two after removal. Again, if the roots are mutilated the head of the tree must be reduced in proportion. Moreover, in planting, the earth must be made to fill up all the interstices between the roots—there must be no hollow places; and, when a tree has been much mutilated, it is a good plan to puddle or, at least, make the pit, in which the tree is to be put, a kind of a mud hole, that is, pour into it two or three pailfuls of water, and throw in a cone of loose earth, on which the tree should be placed, spreading out the roots well and filling up all round with loose soil. By moving the tree sideways, backwards, and forwards, lifting it now and then a little, and continuing to fill in with earth, it may be made a fixture at a proper height, and a little patience will enable you to hold it moderately firm until stakes can be put in to support it until the soil settles. This kind of treatment is unnecessary when trees are small and are carefully lifted, as they should be. I prefer dry planting when the soil is in good order and finely broken; it can then always be got in among the roots well enough to answer the purpose. In that case the point of most importance is to take the plants up well. Dig round them in a circle, as far off the stem as the ends extend, and release the latter carefully, so as not to break them; then, with a sharp knife, cut off the tap-root close to the stem, and all ends that may happen to have got accidentally bruised, and, having roughly estimated the quantity of root lost or injured, make amends by reducing the head in proportion. Cut out all weak shoots close to the stem, and remove any that grow upward or cross each other in the centre, retaining only the best branches in the best positions, and if any of them be too long, shorten them. Then, having made a pit large enough to hold all the roots, fill in with some soft, well-worked soil, and press the roots into position, without bruising them. Hold the tree upright while the hole is being filled in, and shake it, in order that the soil may get well worked in between the roots. When the tree is properly placed, fill up the rest of the hole, and tread it well in; not by pressing the soil close to the stem, but by treading on it all round where the points of the roots are. When pretty firm, drive in three stakes, in a sloping direction, so as to meet at the stem, and to these fasten the tree, so as to prevent wind-waving. A much neater way, however, of fastening trees, is to drive three posts into the ground, in the form of a triangle, and nail some slabs to them. I have removed Cedars, 35 feet high, and fastened them quite securely in this way, the posts being driven into the ground 6 feet deep. But though deciduous trees show us so well when they are at rest, that period is not so apparent in the case of evergreens. It needs close observation to ascertain when they are at rest. With some it is at midsummer, with others later; but the cause of so many failures in transplanting evergreens is moving them when they are in active growth. If the foliage has attained its full size and proper colour, and if the last growth made has assumed the same colour as the rest of the trees, it may be transplanted with safety. If the ground where the trees are to be planted is dry, it must be well watered; and even on the branches the garden-engine must be used if the weather is warm. Plants taken out of peat form an exception, for it frequently happens that a ball of earth, larger than the entire root space, lifts with them, and they are thus unaffected by removal. They do not, indeed, lose a fibre. To recapitulate, planting successfully consists, first, in removing a plant from the place in which it grows, without disturbing its roots much; secondly, if any roots have been lost, cut in the head so as to lessen the work which the roots that remain has to do; thirdly, in placing the tree again in the ground where it is to stand, solidly, and with the roots as nearly as possible in the position in which they were before renewal; and, lastly, in supplying moisture, if it be deficient, and in so fastening the tree in its place that it shall not afterwards be injured through wind-waving.

Rabley, Herts. EDWARD BENNETT.

[We think it right to add that, as regards moving evergreens, in many cases in modern practice, trees are frequently removed with perfect safety when in active growth.]

Unskilful Pruning of Forest Trees.—The principles of forest pruning amongst some so-called foresters are, it seems to me, very imperfectly understood as yet. Is it in accordance with correct practice to lop all the side branches off young Larch and other forest trees—say up to more than half their total height? Within view of where I am writing some foresters are lopping away at a young and hitherto flourishing plantation, some sixteen years old—a narrow belt of mixed wood, but principally Larch, Spruce, and Scotch Fir, with a sprinkling of deciduous trees of kinds as Sycamore, Beech, &c.—fully exposed to high winds on an upland country hillside in Derbyshire. I do not profess to be skilled in forestry myself, but it does not seem to me that such practice is based on sound physiological principles. I notice that the Larch branches are lopped off bare by the stem, whilst those of the Scotch Fir are snagged or left some 6 inches in length. Why this difference, and is it good to cut —it may be somewhat raggedly—close up to the stem? Looking at these unfortunate subjects that are thus hacked and hewed, I can only imagine that their constitutions must have received a rude shock, and that the consequence of cutting off so much of their natural mechanism for healthy growth and for their protection against the winter blasts, will result in a stunted growth which will represent the loss of some years of legitimate development, if, indeed, the plantation ever recovers the effect of such a barbarous practice. Am I right in my supposition?—W. H., *on the Derbyshire Hills.*

Pittosporums Hardy in Ireland.—I enclose a sprig of Pittosporum crassifolium, and of another species, from plants which have grown from seedlings to a good size in the gardens of Mr. William Andrews, at Monkstown, near Dublin, where they flowered abundantly this autumn. Last winter I had a shrub of the former kind which was above 7 feet high, and had flower buds at the end of every leading shoot, and which never was protected in winter; and there is also, in a border of Merrion Square, a smaller plant which I brought from an Edinburgh nursery, and whose growth, through alternate rain, hail, frost, and snow, I am watching with some anxiety. The more commonly known species (P. Tobira) having borne well nearly twenty years in this square, blooming freely every summer and less so each autumn, encourages me to hope that P. crassifolium will prove a valuable addition to town gardening in this country. It is figured in Curtis's "Botanical Magazine" for the year 1875, t. 5,978; and in Van Houtte's "Flores des Serres," Vol. XXI., p. 13; but, if the flower be faithfully depicted, the specimen copied from the Scilly Isles is of a much more brilliant colour than what Dr. Hooker describes as its normal hue. The power this plant has evinced in New Zealand of enduring winds and generally severe weather near the sea may, in England and Ireland, obtain for it a fair trial in such localities, and I write these few lines to elicit information respecting an interesting and ornamental genus.—JOHN ADAIR, *Dublin.*

NOTES AND QUESTIONS ON TREES AND SHRUBS.

The Loquat Hardy in Dorset.—Mr. Garland (see p. 494) mentions that this shrub grows out of doors in Devonshire. A plant of it in the rectory garden at this place has been in the position which it occupies for at least twenty-five years; so that I think there can be no doubt as to its hardiness, for during that time we have had several very severe winters. This plant is nearly 12 feet in height, and is at the present time looking very healthy.—D. UPHILL, *Moreton, Dorchester.*

Chimonanthus fragrans.—This is just now in flower on warm sunny walls, and as many who see it may desire to obtain plants of it it may be as well to point out, that the variety called C. fragrans grandiflorus is much better, both as regards size of flower and perfume, than the species itself; this should, therefore, be procured, if possible, in preference to the smaller flowered kind. It does dot appear to be generally known that the Chimonanthus may readily be increased from seed, which is easily obtained by careful artificial fertilisation.—B.

Sweet Gale.—This, though common, is seldom seen in cultivation, even in the wild garden. For planting in damp situations or in bogs, however, it is well worth attention, if only for its perfume.—M.

THE AMATEUR'S GARDEN.

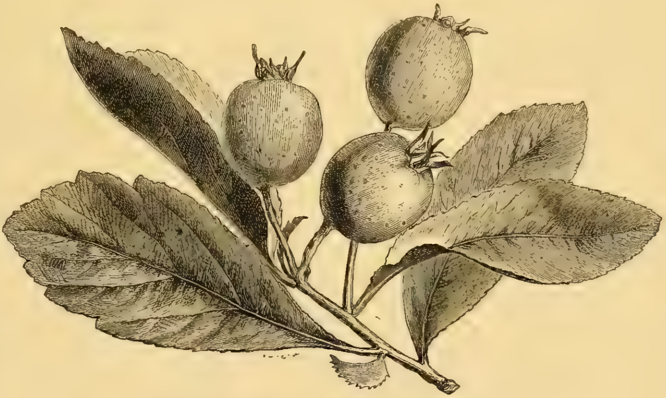
By THOMAS BAINES.

Protecting Vegetables from Frost.—Owing to the wet summer and autumn which we have had, all winter vegetables are in a more than usually tender condition. Cabbages, Broccoli, Brussels Sprouts, Winter Spinach, Celery, Lettuce, and Endive, have alike been in a growing state up to the day on which the unusually early and severe winter weather which we have had set in. Snow acts as a protector in the case of some plants, but in that of others it proves injurious; Celery, especially, suffers when alternately thawed and frozen, and, when subjected to a considerable amount of frost early in the season, there is considerable difficulty in keeping it through the winter, as the leaf-stalks decay as far down as they have been frozen, and cause the heart to rot. It should, therefore, have protection from further visitations of frost, should they occur, and a sufficient amount of litter, straw, or Fern, to cover the rows a few inches in thickness, should also be in readiness. Whatever material is used it will act much more effectually if not in immediate contact with the leaves. The best plan to follow is to insert stout sticks in the middle of each row, at intervals of 2 or 3 yards apart, leaving them standing up just above the leaves; then take a piece of cord or strong tar twine, and stretch it along the rows, from end to end, securing it to each stick; across this place the litter, which will thus be kept from lying directly upon the leaves, over which it will form a ridge. When there is no appearance of severe frost, the litter should be taken off and laid between the rows in readiness to be applied when wanted. It is surprising how little protection will often save a crop from destruction by alternate thawing and freezing; even a few Pea-sticks laid thinly over Broccoli, or sprays of evergreens, such as branches of Spruce, or others of a similar description, will frequently be found sufficient protection. In low, damp situations, where vegetables are particularly liable to the effects of frost, a little littery straw thrown over the sticks will greatly assist in warding it off.

Endive, Lettuce, and Cauliflower.—Plants of these in frames and under hand-lights or cloches should now be well attended to, giving them plenty of air when the weather is mild, but guarding against their getting wet, as they are less likely to suffer from severe frost, when the soil in which they are growing is dry on the surface, than they otherwise would be. When frozen, those in frames should have a mat thrown over the glass when the sun comes upon it, as the effects of being suddenly thawed are most disastrous. Hand-lights and cloches ought to be similarly protected on the south side by means of litter or evergreen branches stuck in the soil so as to screen the plants. Cauliflowers and Lettuce, at the foot of south walls, may be protected by placing boards before them in a slanting position, propped up so as not to allow them to touch the plants. Endive covered with boards for blanching should, during frosty weather, be completely covered over with several inches of litter, for, if frozen, it will decay. The boards that I have previously recommended should be used in this way will be found much better than slates or tiles, both of which are sometimes employed for blanching it, as wood, being a non-conductor, will ward off frost when tiles or slates would admit frost to spoil the Endive. Where the recommendation, given a short time ago, was acted upon, to take up Broccoli that was heading and lay it in by the heels in frames or in a shed where protection could be given it, there will now be a fair supply of this useful vegetable; whereas, all not so treated that had begun to head will have been so far injured as to be worthless, and may at once be removed and the ground dug over.

Rotation of Cropping.—It is unnecessary to carry rotation so far as is sometimes urged, but there is one safe rule that should be observed, and that is that deep-rooted plants should alternate with such as are surface-rooters. In all large well-managed gardens, a plan is kept, showing the kind of crop that has occupied the different quarters each year, as a guide to the memory in sowing and planting in years to come. In amateurs' vegetable gardens a similar method might be followed with advantage. By means of a sheet of paper and a pencil, some plan of this kind might be drawn out in a few minutes; and if a rough sketch is now made, whilst evidences remain of what was grown in different parts of the ground this year, it will be an assistance in the arrangement of crops for the ensuing spring.

Currants and Gooseberries.—These should be pruned forthwith, as nothing is gained by deferring the work till spring. To those unacquainted with the operation of pruning the different varieties of fruits, it is a somewhat difficult matter to convey in writing the mode of procedure. In inexperienced hands, the knife and pruning scissors are too often used much after the fashion of clipping a hedge, that is, by an indiscriminate cutting of the shoots. Gooseberries, supposing the trees to be young, should have their shoots sufficiently thinned out to prevent their crossing each other and to allow of the hand being easily got amongst them to gather the fruit the following season. A little reflection, as the work goes on, will give an idea as to what extent they should be cut in to admit of this. The shoots that remain require no reduction in length beyond taking a little off the points of any that may have considerably outgrown the others. In the centre, the trees should be kept somewhat open, so as to admit plenty of light. Any of the lower branches that are too near the ground should also be removed. Red and White Currants, bearing, as they do, the most fruit from spurs on the old wood, should be similarly pruned. These fruits should have more room allowed between the branches than Gooseberries; and, in the case of young trees that have not attained sufficient size, the preceding summer's shoots may be shortened back to about a foot above the place to which they were cut back the year before. It is a common thing to hear instructions given not to prune Gooseberries and Currants until towards the spring, when it can be seen what shoots have had their fruit buds stripped off by birds. Such advice can only arise from a want of either observation or experience. Where bud-eating birds are numerous, if nothing is done to prevent their depredations, they will often destroy the whole of the buds, or strip the branches that are best placed for forming the trees. In the first case, the whole crop is lost, and, in the second, either the bushes must be left too much crowded with shoots, or those that should be allowed to remain to make them most shapely have to be cut out, leaving the worst untouched, and where these bush fruits are permitted to take their chance, as regards birds, it is not only the ensuing year's crop that suffers, but the fruiting spurs that should go on for years are also often destroyed; hence, as soon after the pruning as possible, something should be done, either to scare the birds away or render the buds distasteful to them. White cotton thread as thick as worsted, such as is used for common dip candle wicks, is often put over the bushes. This usually consists of three threads, which should be ravelled and used singly, threading it from a dozen to a score of times lightly across each tree, so that it will wave in the wind. Ordinary cotton sewing thread is too thin, and does not frighten them off as well as this thicker material. An active lad will thread over a great number of trees in a short time. Sparrows are the greatest depredators amongst Gooseberries and Currants in small gardens near buildings, where they usually resort in winter; they rarely molest large breadths of bush fruits, such as are grown by market gardeners in more open situations. Here the bullfinches have oftener to be contended with than the sparrow, and thread is seldom any deterrent to them. In this case the gun, however reluctantly it may be used, is the only remedy. A mixture of half lime and soot, made with water into the thickness of ordinary whitewash, with which to dress the trees, is an excellent preventive. It may be applied with a small watering-pot having a rose sufficiently coarse to allow the mixture to pass through it, or it may be sprinkled on the bushes with an old handbrush. A fine day should be chosen for the operation, in order that the dressing may get thoroughly dried on the branches, after which it will take a good deal of wet weather to remove it; but, if it should get washed off before spring, a second application may be given. Black Currants do not require so much pruning as the other kinds; merely thin out the branches a little, as they do better when thick enough to afford shade. Birds do not molest them.



Large Yellow-fruited Hawthorn (Cratægus lobata serotina). See p. 519.

Raspberries.—If all superabundant suckers have been cleared away from these, and the bearing canes cut out as soon as the crop was gathered, the benefit of such treatment will be now apparent in the shape of much stronger shoots for next year's fruiting than if no such attention had been paid to them. All that they will now require is shortening the canes, the length to which they are cut back being regulated by the way in which they are to be tied. If the canes that spring from each root or stool are tied up to a single stake, they should be cut somewhat shorter than if half is bent one way and half the other, their points being tied so as to form an arch, as the mere bending of them causes the eyes to break lower down the shoots than they otherwise would do. Where this method of training—*i.e.*, the arch system—is practised, a stout stake should be driven into the ground where the shoots meet and slightly cross each other, and to this they should be tied, in order to support them. One advantage belonging to this way of training is that the young shoots, each spring, have from the first the full benefit of sun and air, being in no way overhung by the bearing canes. The neatest way, however, of training Raspberries is stretching a couple of strong wires, three-sixteenths or a quarter of an inch thick, along each row, firmly secured to a stout post at each end, and strengthened by others at intervals. To these wires the canes from each stool should be regularly tied out fan-shape, so as to meet those from the adjoining stools, and so on throughout all the rows. When the tying is completed, the prunings should be raked off. If the advice that has been from time to time given through the summer, as to the necessity for keeping weeds thoroughly down, especially among Raspberries, has been followed, there will now be few with which to contend. It would be difficult to name any plant in cultivation that is so much injured by the land being allowed to get foul with weeds, as the Raspberry. If weeds exist in any considerable quantity at this season, they must either be hoed and raked off, by which a good portion of the soil is removed with them, or they must be dug into the ground, in which case the roots that lie thickly just under the surface are seriously injured. All the ground should now require is to have a couple of inches of the top forked over, and afterwards a good dressing of rotten dung spread on the surface. Raspberries will bear as much manure as almost anything grown, their strength being generally proportionate to the quantity they receive. A given number of plants, well managed and strong, will produce three times the amount of fruit that an equal number of weak ones will.

The Flower Garden and Pleasure Grounds.

The routine out-door operations requiring attention in this department are few, and will, now that the snow has disappeared, consist in sweeping lawns and walks, and well rolling them. The surface of flower-beds containing ornamental shrubs, spring-flowering plants, and bulbs, should be refreshed and kept free from weeds, and littery matter of every kind. Now that the season is so far advanced, and severe weather likely to be experienced, it will be advisable to defer the completion of tree and shrub planting until the return of spring. Pruning evergreens of all kinds should also be postponed until the spring is somewhat advanced, or, until all likelihood of severe and protracted frost is over. Plants in an unmutilated condition are better able to withstand the effects of intense cold, than after they have undergone the operation of pruning, and, with the vast amount of moisture at present in the soil, a repetition of the weather of the winter of 1860-61 would probably be disastrous in its effects. During that memorable winter, not only the somewhat tender Aucubas, Arbutuses, and Phillyreas, but evergreen Oaks of considerable dimensions, Portugal and common Laurels, besides common and other Hollies, were in many places killed down to the ground. The pruning, however, of hardy deciduous trees and shrubs may be continued when the weather is mild, as it is of considerable importance to get as forward as possible with such work before the spring, which invariably brings with it a multiplicity of operations requiring attention. Attend carefully to the wants of bedding stock of all kinds, using no more fire-heat than is necessary to exclude frost, and give air whenever the state of the weather will admit of this being done. —P. Grieve, *Culford, Bury St. Edmunds.*

Roses.

In the case of outdoor Roses little can be done during the present weather beyond protecting tender kinds with light litter, such as Fern or straw. Pot Roses required for forcing should all be pruned during this month. Prune, clean, and train all Roses in houses; during severe weather preparation may be made in conservatories and greenhouses for planting out Maréchal Niel, Lamarque, or any of the best climbing varieties. Maréchal Niel should be thus employed where room can be spared, as it is one of the most useful Roses we have for supplying cut flowers. Tea Goubault is also an excellent pink Rose for planting out, and one which blooms very freely. It is a useful winter-flowering variety, its colour contrasting well with that of other Roses in the conservatory. Look carefully through all pot Roses that are coming into bloom. Should mildew show itself, stop it at once by the use of sulphur, or it will soon spread over the whole collection; mildew generally shows itself as the foliage begins to harden. Plants infested with green fly must also be well syringed or fumigated. Another batch of pot Roses that have been pruned and cleaned should be subjected to a slight bottom-heat, so as to obtain plenty of blooms for keeping up a succession. Roses that are in bloom now will last up to Christmas; those placed in heat during November will flower during January, and those put in now will bloom in February. The Sweet Briar is very useful for forcing; to obtain good plants of it for next season, sow some seed at once, and as soon as the plants are strong enough, pot them off, and grow them on in heat, nipping out the points as soon as they are long enough to stop, so as to keep them bushy. When well hardened off, plant them out in spring in a prepared bed, and by the autumn they will have made sufficient growth to be placed in 48 and 32-sized pots. They should then be taken up and potted, being careful not to break the roots more than can be helped; place them in a cold pit, and use them as required. Where conservatory and indoor stands require filling during winter, these plants are much admired for their odour.—H. G.

Indoor Fruit Department.

Vines.—Pot Vines for planting and other purposes, will now be in a dormant state; nevertheless, the soil containing their roots should not be allowed to become perfectly dry, or they will suffer. A little water, once a fortnight, is generally sufficient to keep them in good condition, and frost, unless very severe, need not be excluded from the houses which contain them. Where Vines are grown to fruit in pots very early, success can only be achieved by thoroughly cultivating the canes for two years previously. The weakest of the canes of this season's growth should be selected now and cut back to three fresh eyes from the root. The Vine should then be turned out of the pot in which it has been growing, and all the loose earth should be shaken from about the roots. If the soil is not in good condition, the whole of it may be removed, when the Vine should be put in the smallest-sized pot that will receive it. Loam only should be used in potting, and that should be somewhat open or sandy to induce the roots to start satisfactorily into growth. The roots should be put far enough down in the pot for the soil to come close up to the lowest bud. When potted they should be watered with tepid water, and allowed to stand on the potting-bench for a day or two before being introduced into heat. In starting plants into growth the pots should be plunged in a bottom-heat of 75° or 80°. The temperature of the air should range between 60° and 65°. After the first watering they do not need much more at the root until growth is somewhat advanced. They should be moistened over head every afternoon with the syringe, as a moist atmosphere favours the bursting of the buds, and on this depends whether or not strong early-ripened canes may be had for starting this time next year. Where wire-worm and other pests are plentiful in the soil which is to be used for growing pot and other Vines, it is a good plan to lift a few inches of the surface-soil immediately it is thawed after a sharp frost. The worms are then generally well down.

Pines.—Plants of the Smooth Cayenne, and other varieties, which were put in as suckers about twelve months ago, should show fruit now, to ripen and keep up the supply before the early Queens are fit for use. The soil at the root should be examined as soon as the fruit appears, in case water may be wanted. The bottom-heat for them at this stage, should not be less than 80°; and, as the fruit is often reluctant to come up during the short days, the air temperature should be 65° at night, and 70° during the day, in mild weather. The remarks I have above made respecting Vine soil applies to that for Pines also.—J. Muir.

THE INDOOR GARDEN.

A PLEA FOR FUCHSIAS.

I am neither about to give a list of the best varieties, nor to describe any one mode of culture. Neither of these courses is necessary; for almost everyone has his favourite Fuchsias, ranging from the old globosa, hardly yet superseded in its class, to the latest novelty of Messrs. Banks or Cannell; and, as to culture, nothing can be more easy. Some good rich soil, of any kind, so long as it is neither rank clay nor sheer sand, a season of rest and of free growth, full exposure to light and air when growing, and partial shade from noonday heat when in full beauty, and the Fuchsia needs no more to bring it to, and keep it long in, perfection. Better, rather, to enquire how it comes about that Fuchsias are, at the present day, so seldom seen. Is it on account of their easy propagation and culture? Perhaps so. Heaths and most other hard-wooded plants are somewhat difficult to manage, at least, so it is generally said and felt, although I never found it more difficult to grow good Camellias, Azaleas, common Heaths, and hard-wooded plants than good Fuchsias; but, of course, the merit is considered far greater, and therefore, perhaps, more effort and greater skill are brought to bear upon such plants; for, assuredly, as a rule, they are far more successfully grown than Fuchsias. Or, is it that good Fuchsias are not valued? This is true, as regards most judges at flower shows. I have seen the most wretched half-dozen of hard-wooded plants take the first places for six stove and greenhouse plants, when another lot, containing capital Fuchsias and Pelargoniums, were contemptuously set aside as common and easily raised, and that, too, when there has been nothing whatever about hard-wooded plants in the schedules, and where these have hardly been grown at all and soft-wooded plants well grown. But, assuredly, people of taste do very highly admire well-grown Fuchsias, so that want of appreciation can hardly be assigned as the reason for the indifferent stock of Fuchsias which one sees in many gardens. Assuredly, if anything would ruin the character of this noble family of plants the miserable specimens which, with very few exceptions, are generally seen at the shows of the great metropolitan and other societies would have stamped Fuchsias out of cultivation long ago; but, the fact is, the bulk of exhibition Fuchsias is not, in regard to cultivation, any criterion of Fuchsia culture nor of their value for ornament. Fuchsias are not very good travellers, and no doubt this is one reason why a great many of the finest in the country generally remain at home. Perhaps the best form for a specimen Fuchsia is that of a cone or pyramid. These may vary much in width of base and height. But the form suits the habit of the plant well, and enables it to display its flowers to good effect, without overcrowding or confusion. One central stem makes the finest pyramid, though many perfect plants are often formed by tying in several stems, to produce one regular cone of unbroken symmetry. Next to the pyramid, I prefer the standard. These may vary in height from 2 feet to 6 or 8 feet, the heads bearing a proper relation to the height of the stem. Scarcely any plants can match in grace and beauty well-grown and perfectly-furnished standard Fuchsias. The third place may be given to bush Fuchsias, that is, plants with from five to fifteen branches, generally bearing one central one, and others subsidiary, the whole forming a mass of flower and foliage of the richest and most beautiful description. Fuchsias are also magnificent when clothing arches, rafters, or roof-pillars, and form rich drapery for walls. Scarcely any plants are better for the furnishing of baskets than most of the more delicate growing varieties of Fuchsia; and what is more beautiful than a lofty conservatory or other house full of good specimen tree Fuchsias, planted out or in tubs, with roofs and walls also furnished wholly with this rich and noble family? In such a house the finer sorts of Fuchsias might be grown as standards or pyramids to heights varying from 15 to 30 feet, or more, in height, and I will undertake to say, that in no single family of plants could greater variety or more abundant beauty be found. D. T. Fish.

Hardwicke, Bury St. Edmunds.

CHINESE PRIMULAS FROM CUTTINGS.

A friend of mine the other day sent me a few blooms of Primulas in order that I might see how early and how excellently they bloom when propagated by cuttings from old plants. My friend makes the growing of Primulas a speciality, and in order that he may get them year by year of increasingly superior quality, he spares neither expense nor trouble to secure the best strain in cultivation. Having, as he thinks, got the best—at least they satisfy him, and I can bear record that he is hard to please—he casts about for the best way of keeping them year by year in their present high state of excellence. Of course he had, in years gone by, practised propagating them by cuttings in the old way, round the sides of a large pot or singly in thumb pots, but none of these methods were as satisfactory as he wished. In one of the issues of The Garden, he saw the plan recommended of propagating certain top-heavy cuttings, such as Geranium eyes with their leaves on, by tying them up to a small stick, and just inserting the ends of the cuttings in silver sand, and plunging them in a gentle, steady bottom-heat. Last year he adopted this plan, and his success was very great; he scarcely lost a single cutting, and in November when he sent me the specimens, he had his first batch of them in full bloom, and he said "he was at last satisfied with them." If no one cares to adopt this plan with any of the single varieties, preferring the more general way of raising them from seed, perhaps it may be found useful for striking those proverbially "miffy" subjects, the double white Primulas. N. H. P.

BOILER WATER NOT INJURIOUS TO PLANTS.

Mr. Wells need not fear any injurious effects from the use of boiler water. I have a house 100 feet by 14, which is so arranged that the whole amount of water required for watering and syringing must first pass through the boiler. I will briefly state how this is managed. There is in the house a front stage about 4 feet in width, and a back stage running parallel to, and about 18 inches from the roof. The boiler is fixed at one end of the house, two 4-inch flow pipes passing underneath the front stage and delivering into an open cistern at the other extremity, from which the return issues, passing down the centre of the house, and underneath the back stage. Under the flow pipe nearest the walk are cement cisterns at convenient distances, and, from a tap in the pipe, each of these cisterns are filled as required. About 6 feet from the boiler is a large cement cistern, into which the water can be made to flow at will, by means of a T piece in one of the flows, a return pipe again issuing from this into the boiler. A valve on each flow above the cistern enables me to heat the water in it at any time, independent of the whole house, which is found very convenient if warm or hot water is required quickly. It will thus be seen that the water flows directly from the boiler into this cistern, returning over and over again before being drawn for syringing, for which purpose it is oftentimes used, being clear as crystal—in fact the course of circulation which it undergoes, seems to purify and filter it; at all events, however much the plants in the house may be deluged with it, there never by any chance remains the slightest stain upon their foliage. This water I conceive to be almost identical with that drawn directly from the boiler. I am certain that it is owing to no innate quality in the water itself, that the foliage does not soil, for if used in its natural state it invariably leaves that stained dirty appearance which is the ordinary effect of free syringing and which necessitates, especially amongst fine foliaged plants, frequent washing of the leaves. My plan is to let water into the cisterns just before watering the house; the pipes are easily and rapidly refilled by a pump and trough near the open cistern at the end of the house; a quarter of an hour fills the whole apparatus again, and we never have to carry a drop of water in. In order to prevent dirt or impurities of any kind coming in with the water, the lower part of the pump tube is fixed in a wooden box in which holes are bored at about 1 foot from the bottom, so that sand, leaves, &c., are effectually excluded. It may be objected that the constant refilling of the pipes causes an extra and useless consumption of fuel, but I know that in this respect I am repaid many-fold by the advantage of being always enabled to command an unlimited supply of warm pure water for watering and syringing. The house is at present filled with Cyclamens which have healthy luxuriant foliage, and are throwing up well into bloom, and they have had, up to the present time, no other water than that drawn from the flow pipes in the manner above mentioned. These will at the proper season be replaced by Strawberry plants, 1,500 being forced here. They will never get any cold water during the whole of the forcing season, and the lively root action, and consequent luxuriant growth, which the constant gentle rise of temperature in the soil induces in both flowers and fruit, compensates for any little extra labour or expense at the furnace. I speak now after five years experience of the system, and every season convinces me still more of the benefits derived from the constant use of water above the temperature of the house, and that water which has passed through the boiler and pipes may be used with perfect confidence for this purpose. John Cornhill.

Byfleet.

Treatment of Fuchsia Seeds.—The simplest plan with Fuchsia pods is to rub them up in the hands with dry silver sand, and after drying the seeds in the sun or before a fire, in an earthenware plate or saucer, to sow both sand and seed. Strawberries, Raspberries, and similar berried fruit do best treated in this way, when they can be sown at once; for, it need scarcely be added that such seeds are not improved by being kept in dry drawers. The sooner, in fact, they are sown the better after undergoing the sand-mixing and partially drying process. When it is desired to send the seed away, it can easily be sifted out of the sand.—Chevalier.

Euphorbia Jacquiniæflora for Winter Flowering.—In order to obtain fine specimens of this valuable winter-flowering plant, take plants of it that have been rested after the flowering season; prune them into shape in the first week in June, and place them in a temperature of from 60° to 65°. As soon as they begin to break, shake off some of the old soil from their roots, and re-pot them in a compost of two-thirds good fibrous loam, and one-third good peat, with a liberal addition of silver sand. Replace them in a moist atmosphere where the temperature ranges from 70° to 75°, and shift them into larger pots when required, according to the purposes for which they are intended. They will require to be pinched several times so as to induce them to form good pyramids or other approved forms. Good plants of it may be grown for dinner-table decoration in 5-inch pots, but under such conditions they should be supplied occasionally with weak liquid manure. With a good supply of plants a succession may be kept up all through the dull winter months.—F. Bedford, *Straffan, Kildare.*

Calanthe Veitchii from Cuttings.—It may not be generally known that this Calanthe is easily propagated in this way, the best time being, according to my experience, when the plants are at rest, as there is then no fear of the bulbs bleeding so much as to injure either the parent bulb or cuttings. I have all the bulbs cut down just below the bottom joint, which is about half the bulb. I then cut the bulb, or bulbs, through at every joint, of which, if the parent bulbs are strong, there will be three or four. The cuttings are then inserted, three in a 4-inch pot, the pots being well drained with crocks, over which should be placed an inch of light rich soil and an inch of silver sand. They are then placed on a shelf, and kept moderately moist. When the young bulbs burst from the bottom of the cuttings, and the roots are about an inch long, they are potted off into single pots, in a compost of loam and peat, and placed beside the parent plants, when they will develop into fine bulbs the first season, and flower the second. When growing, they should be liberally supplied with manure-water. By this method, it takes but a short time to secure a good stock of this very valuable winter flower.—R. Greenfield, *Priory Gardens.*

The Roman Hyacinth.—This charming early-flowering variety, so dwarf and fine, and bearing chaste, delicately-scented, white flowers, is now largely imported from France, Holland, and Belgium for forcing purposes. It forces with great rapidity, and the bulbs, though not nearly so large as those of our ordinary Hyacinths, produce several spikes of flowers each. There is a blue form of this early Hyacinth, sometimes called Parisian Hyacinth, that is a fortnight or so later than the white one, but is a useful succession notwithstanding. The early Roman Hyacinth is well worthy the attention of those who have a glass structure in which a few things can be got early into flower. Even when there is no artificial heat a few of these early Hyacinths can be had in bloom some time before our ordinary Hyacinths, even when planted at the same time. Last spring, having but little room to spare, I planted some of the ordinary Hyacinths in pots, using 32-size, and placed one bulb in each. Round some of these I put a circle of Roman Hyacinths, using four, five, or six bulbs, according to their size, and I found that these started into growth, and actually came into flower, almost before the Hyacinths in the centre of the pots had made much growth. As soon as the flowers furnished by the Roman Hyacinths had died away, the foliage was removed with the decaying flowers, and thus the ordinary Hyacinth had space to grow, and in each case flowered finely, notwithstanding the presence of the bulbs just alluded to. Perhaps this practice is hardly to be commended, but I did it for economy's sake, and I was well pleased with the results. As a matter of course, the soil should be thoroughly good, and it is well to apply a little weak manure-water or a pinch of a patent manure to the late Hyacinth. It matters not what care may be taken of the bulbs of the early Roman Hyacinth, or how scrupulously they may be preserved, they never flower so early the second year as fresh-imported bulbs do.—R. D.

Sericobonias.—S. ignea is figured and described in "L'Illustration Horticole," 1875 (p. 39) as a bigeneric hybrid, obtained by Mr. H. Rowland, and Mr. J. Linden has distributed it under the above name. Its parents were Libonia floribunda fertilised with pollen from Sericographis Ghiesbreghtiana, and M. André has named the plant in accordance with a suggestion made by Prof. Oliver, viz., that all bigeneric hybrids should have a compound name given them, this to be formed by joining the generic names of both parents as euphoniously as possible. Another plant, quite distinct in habit, colour of flower, and other external characteristics, has also resulted from precisely the same parentage, and possibly from the same individuals, this being known in English gardens as Libonia Penrhosiana (Hort. Bull=Sericobonia Penrhosiensis Lind. et André). Now, as it is always interesting to know the exact history of hybrids, especially bi-generic ones, will Mr. Linden, or Mr. Bull, or Mr. Rowland tell us if both these plants were raised at Penrhose Castle or elsewhere, and whether or not they are both seedlings from the same cross? I saw the last-named plant in bloom in Mr. Methven's nurseries, in Leith Walk, when the Edinburgh show took place, and it is certainly quite different and distinct from S. ignea, as figured by MM. Linden and André in "L'Illustration Horticole."—F. W. B.

A Pure White Amaryllis.—One of the loveliest Amaryllids that has come under our notice is in flower just now in the stove at Glasnevin. It is, we apprehend, a true Amaryllis, with a large bulb, leaves of the usual strap-shaped form, and deciduous. The flower-stem is stout, and some 18 inches or more in height, crowned with a nodding umbel of five or six pure white blossoms. The shape of the flowers is elegant, the tube being of slender proportions, and fully a span long, the limb large as that of any of the ordinary varieties, but more delicate in substance, and slightly wavy at the edges. Besides their elegant form and purity, the flowers are also attractive being delicious from their fragrance. As far as is known at Glasnevin, this is an unnamed species, nor does Dr. Moore exactly know how or whence it was introduced. If we remember rightly, a white Amaryllis named A. virginalis was exhibited in the Regent's Park, at one of the early shows in 1874, and certificated, as was stated at the time, for its colour. We scarcely think this is identical with the Glasnevin plant, for the latter has much more to recommend it than its colour, novel and striking as that is, no doubt, among Amaryllids.—"Irish Farmers' Gazette."

Wall Gardening Indoors.—On visiting the Botanical Gardens at Edge Lane, Liverpool, some time ago, I was struck with what seemed to me to be a horticultural wonder—viz., a vertical mass of Begonias, Ferns, Moss, &c., covering the entire side of one of the houses. Now, I may safely assert that I am not easy to please; but I was more than pleased with this wall, the universal verdict concerning which is that nothing could look better. On enquiring how the vertical position was maintained, I was informed that a strong iron-wire netting had been fastened about 6 inches from the wall, the intermediate space being packed with old sods, with the grassy side facing the netting. Having determined to construct a wall of this kind myself, I made numbers of wood bricks, and hit upon the following plan, which I am now carrying out on one side of my stove wall. The spaces between the bricks are shelved with slates, to prevent the soil bearing down; and, if there is any difficulty in keeping the soil up until it is grown over with Moss, it can be met by putting a few pieces of stick wedged across the front; these will be unnecessary when the Moss has spread. The bricks chosen for the "pocket" work are the softest and most porous I could procure, and along the top of the wall will run a water-pipe, perforated the whole length. By this arrangement, the simple turning of a tap will water the whole with little labour, and will prevent the necessity of wetting, and possibly spoiling, the foliage of the plants. Can any of your readers suggest a better plan?—Thos. Fletcher, F.C.S., *Warrington.*

Hoya carnosa Wall-rooted.—About eighteen months ago I had occasion to remove a large plant of Hoya carnosa from the back wall of the plant stove here. Some time after I perceived that a piece about 6 feet long had been broken off, and still adhered to the wires on the walls, where it was allowed to remain. Some little time afterwards I found it had rooted from the point into a crevice in the wall at the top of the house, where it has grown and flowered freely all the past season, and promises to become a permanent plant.—R. Greenfield, *Priory Gardens.*

Colax jugosus, Helcia sanguinolenta, and Masdevallia polysticha.—Allow me to recommend these three Orchids to those who have not already got them. We have them in bloom in 3-inch pots in a mixture of fibrous peat and Sphagnum. They are easily grown and are very free bloomers; even in such a small pot the Masdevallia has produced seven spikes, on each of which there are five flowers. They will succeed in a cool house, keeping the Colax in the warmest end.—J. Beattie, *Moat Mount.*

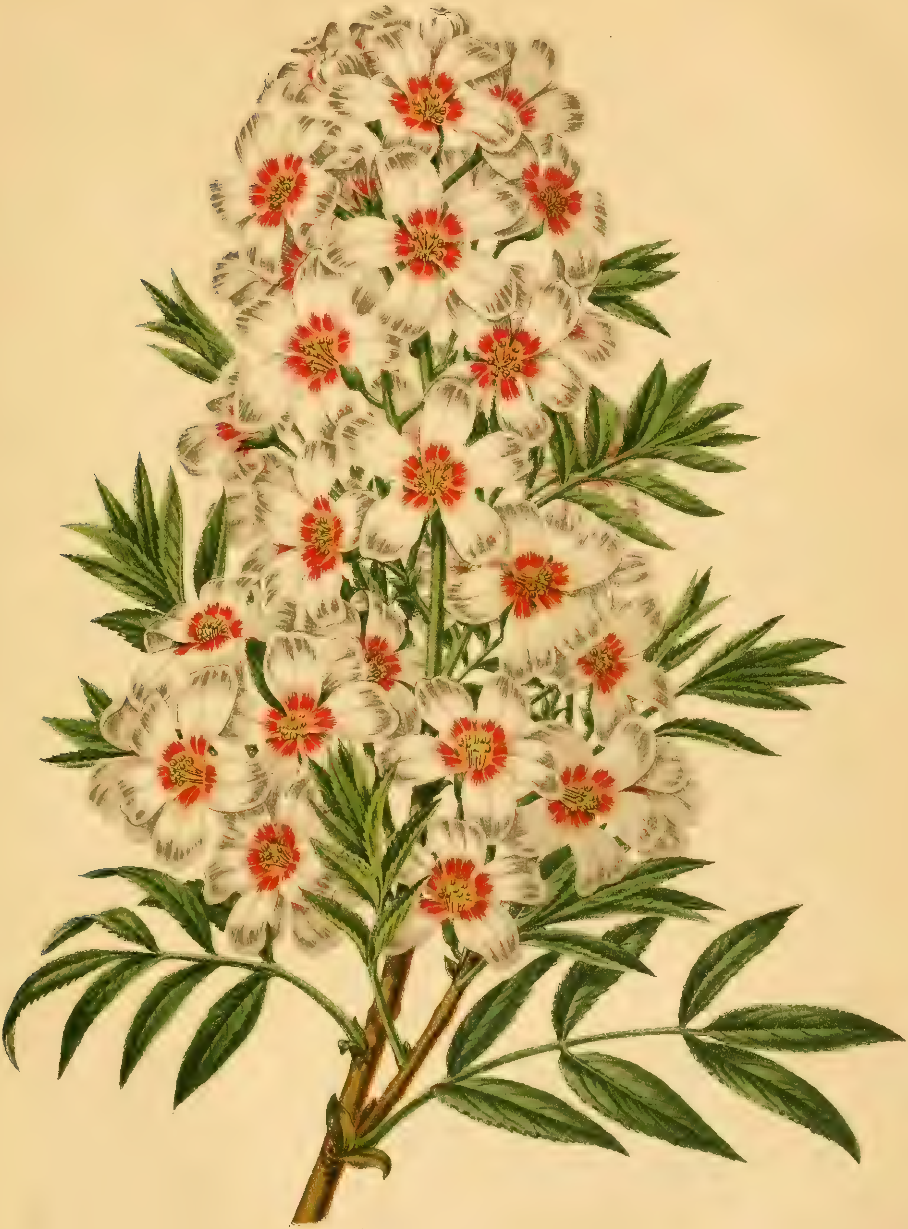
COLOURED ILLUSTRATION.

A NEW HARDY SHRUB.

(XANTHOCERAS SORBIFOLIA.)

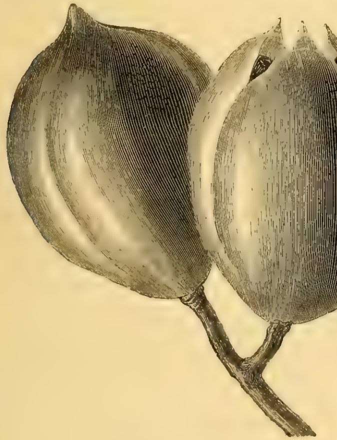
The shrub figured in our coloured plate is amongst the most important introductions made during the last few years. Originally it came from Mongolia—that is to say from the centre of China—where it was found by the Abbé David and brought to the Paris Muséum about 1868 by a young Frenchman, M. Pichou. This valuable ornamental variety is very rare, and the Paris Muséum was the first establishment in Europe which possessed it. The following are its principal characteristics. The shrub or small tree does not appear to exceed 10 or 12 feet in height, and has a tendency to be bushy. The leaves are alternate and composite, reminding one of the Service tree (Pyrus Sorbus), which accounts for the name given to it by Bunge. The flowers expand during the first fortnight in April, at the same time as the leaves are developed, and are disposed in racemes, which attain a height of 8 inches, and sometimes more. They are five petalled, and slightly deflected when fully open. In colour they are white, sometimes having a very slight fleshy tint, and reddish-copper coloured at the base, sometimes shading off into a purple-violet. X. sorbifolia, which is very floriferous, belongs to the family of Sapindaceæ, being placed near Kœlreuteria paniculata, in whose company, it appears, it is nearly always found in a wild state; it flowers when quite small, which, from an ornamental point of view, is a great advantage. It is probable that it might be grown in pots for the market. In the "Flore des Serres" there is published an extract of a letter from the Abbé Armand David to M. Decaisne, in which occur, in addition to certain details respecting the locality where the Xanthoceras grows, some interesting observations, which we reproduce here.—"I was in the middle of Mongolia when your letter of June (1866) reached me, in which you have the goodness to acknowledge the receipt of the subjects confided to the care of M. Pichou. I am happy that he was able to deliver you the Xanthoceras. As regards the Cedrela sinensis, I really believe it to be a delicate plant, and rare at Pekin. I was unable, in spite of the most pressing solicitations, to obtain any good seeds of it; all appeared to me to be abortive. I also never met with a young specimen beneath the older ones at Pekin. I shall, however, do all in my power to procure this beautiful tree, which will, as you say, be a valuable addition to our forest trees. You know, perhaps, that I passed eight months of last year in the Ourato. I spent plenty of money there, and lost both time and labour, for the country is very poor, although I was informed to the contrary at Pekin. I advanced to within 200 leagues to the east of that capital. The flora of the Oulachan chain, which has never been trodden by the feet of Europeans, has a peculiar character. Many of the common species in the mountains of Pekin and Jehol are no longer met with here. Amongst the most interesting, are an Aquilegia, with green flowers (A. viridiflora), which is found in abundance; a pretty leguminous plant, with blood-red flowers (Lessertia); a kind of herbaceous Sophora, with numerous white and very odorous flowers (Sophora alopecuroides); a spiny Bindweed, with rose flowers, and a Rhamnus, with long linear foliage. It was there that I found the Xanthoceras in a wild state; the large Juniper cultivated at Pekin (Juniperus excelsa), a Poplar and two rather curious shrubs, of which one is a Clematis, with straight stems and yellow pendent flowers (Clematis fruticosa), the other, a very pretty little shrub, with blue flowers (Caryopteris mongolica). I also collected some fine yellow Roses, but on the whole the vegetation of the Ourato is somewhat poor. I traversed the whole country in all directions, and I believe I have collected all that is to be met with there. The Ourato, of which the chain running east and west as far as Karacota may be about 80 leagues in length and 12 in breadth, is not composed of high mountains; its forests, of which I was given a glowing description at Pekin, are now almost destroyed. Some eastern valleys still contain some woods of Pine trees, intermingled with Poplars, Junipers, Maples (Acer tataricum), and Elms, and in rocky parts some

Supplement to *The Garden,* Office 37, Southampton Street, Covent Garden, London, W.C.



XANTHOCERAS SORBIFOLIA

Thujas, two or three Willows, one Lime tree, one Cherry growing on the banks of streams; but no Ashes, no Ailantus, Vitis, or Rhododendron—the Oak even is rare. The country of the Ortous is an immense alluvial plain, which is intersected by the Yellow River, on the banks of which I came across a Tamarisk, with comparatively large leaves. Wherever it was possible the Chinese have cultivated the land, and have driven away the pastoral Mongolians. These in a short time, will find themselves driven back as far as the great desert of Gobi, of the black shifting sand of which I could catch glimpses in the distance." Up to the year 1873 orders were, for some unaccountable reason, given that the flowers which with annual regularity had been produced, should be cut. In the year mentioned, however, the plant was allowed to retain its flowers, with a view to obtaining seeds. These were in due course produced, and an opportunity has been afforded of pointing out some of the characteristics and peculiarities of the seed-vessels. We may remark, to commence with, that, notwithstanding the plant has borne several thousand flowers, only four fruits have been produced, which are arranged in pairs, as is represented in the annexed engraving. These fruits or seed-vessels, which, as their maturity advances, assume the shape of an elongated Peach, are about 2 inches in length, and 1½ inches in diameter somewhat attenuated at the base, and prolonged towards the summit into a kind of knob, similar to that frequently seen upon certain Peaches, or even Almonds, the surface slightly indented, and, as regards its pulverulent texture, reminding one still more of the skin of Peaches or Apricots. The seeds are not numerous, and ripen towards the end of July; they remind one greatly of those of the Kœlreuteria paniculata. Although but little is known of the nature of the seeds, an examination of them leads us to believe that they ought to be sown, a short time after they have ripened, in a cold frame, if successful germination is to be expected. The above particulars of this fine plant are given in the "Revue Horticole," where it was figured. It is as yet very rare in our gardens, but it may be obtained through our principal nurserymen.



Fruit of the Xanthoceras sorbifolia (natural size).

Spiræa Lindleyana Treated as an Herbacous Plant.—In the well-designed garden at Highlands, St. Saviour's, Jersey, there are two large clumps of this beautiful plant, which are treated as herbaceous plants usually are, and cut down annually. The effect of them when in bloom is very striking, as every shoot produces a splendid wreath or plume of flowers. Not having seen or heard of it being treated in this way elsewhere, I ("C. B. S.," in "Gardeners' Chronicle") thought it would be interesting to lovers of hardy plants to know it. A large bed of it would be very effective.

THE FRUIT GARDEN.

STRIPPING OLD BARK FROM GRAPE VINES.

No harm can possibly result from this practice, provided none other but the really coarse bark is removed. Where this alone is done, and the Vines are painted over with a thin wash of Gishurst and clay, any insect pests that may have taken up their winter quarters in the rough, dry bark, are easily destroyed. Few Vineries are entirely free from either thrips or red spider, and, when these are present, they are sure to effect a lodgment or deposit their eggs in the dry bark. As a precautionary measure, therefore, if their presence is suspected, as well as for appearance sake, most cultivators make a practice of stripping off the loose bark and giving a dressing immediately after the winter pruning. It is only when it is carried to excess that the practice is to be condemned. If the bark is forcibly stripped from them by the use of a knife or other instrument, its removal has a most injurious effect on the stem of a Vine by allowing the air to act on the inner and immature bark, thus causing contraction of the sap-vessels. I have seen Vines not only stripped of their loose outer bark, but actually scraped with a knife, so that every particle of their bark has been, as it were, planed off them, especially round the spurs. Vines so treated are greatly checked in their swelling, and never make the same sized rods they would have done had their treatment been more natural. For my own part, I never allow a knife to be used when removing the old rough bark, and we only take away that which at the time of pruning hangs loose, or such as may be readily detached by rubbing the hand round the rod. The Vine is sure to throw off its old bark when it has answered its purpose, and the stem has no longer need for its services. This follows in natural order, just as the shedding of the leaves take place, and unless there are special reasons for its partial removal, such as the destruction of insects, &c., it is unwise to force the hand of Nature. Besides, lurking in the bark of Vines, insects take up their abode in every hole and crevice, and those who would be free from them should not only clean and dress over the stems of their Vines, but should thoroughly wash and cleanse the whole of the interior of every house that may be devoted to plant or fruit culture. Were this more attended to than it is, insects commonly infesting plant and fruit houses would be less troublesome than is now frequently the case, for, if allowed to lay quietly by in their winter quarters, they emerge when heat is applied, and increase with marvellous rapidity. Advantage should, therefore, be taken of the inclement weather that may be expected during the winter, when labour is set free from outdoor operations, to give the insides of the houses a thorough cleansing. This should likewise extend to the glass, which at this season is usually coated over with a thin slimy deposit; when the external atmosphere is damp, this admits of ready removal, and a soft hand-brush or duster slightly rubbed over it will disturb it sufficiently so that it may be readily removed by the application of water sent with some force from the garden engine or syringe. It is only at this season of the year that the houses are at liberty, or that labour can be spared for such a general cleansing, and by making a point of taking them in detail as they become vacant, the whole may easily be got through, and no labour in any department of the garden will be found to result more profitably. Both pots and plants must be kept scrupulously clean, if even ordinary success is to be achieved in the cultivation of the latter. If the leaves are dirty, or the plants infected with insects, they must be washed and cleansed either by hand or, in case of small-leaved plants, such as Azaleas and others, by the use of a good syringe or by dipping their heads several times in a carefully-prepared solution of any of the insecticides. The plants should, on each occasion of dipping, be carefully laid on their sides, so as to prevent any of the wash that drains from the leaves soaking into the soil and injuring the roots. While in the above position, they should be thoroughly rinsed with clear soft water, applied with as much force by the engine or syringe as can be done with safety to the plants. If the surface of the soil is not sweet and clean and thoroughly free from all appearance of a mossy or green growth, it should be made so, by scraping it off, taking care, at the same time,

that the roots do not suffer injury by being barked or bruised. To have plants in health, it is of the greatest importance that the pots in which they are growing should not be allowed to become slimy and green. Therefore, any that may be showing the least appearance of such a condition, should have a good scrubbing with a hard coir scrubbing brush. A good cleansing of this kind necessarily entails the use of much water, and, to prevent injury arising from damp, small fires should be kept up for a day or two, that any excess of moisture may be got rid of. A slight portion of air on the back and front ventilators must be applied at the same time or damage will be done.
J. Sheppard.

NOVEMBER PEARS.

Last month, October, I sent you a list of all the first-class Pears that had ripened in my collection during that month, and I now send you a similar list of those that have ripened during November. Let me say, however, that some in each month will be found to ripen in the month preceding and succeeding each of the above periods, *i.e.*, some of the early October sorts will be ripe in the end of September, and some of the later kinds will run into November. This rule holds good through all the months, and, therefore, in works on pomology it is usual to say ripe from July to August, or from August to September, &c., thus making some little allowance for the forwardness or backwardness of season, position, &c. The sorts in the following list have been carefully examined and tested by all the best authors who have written on pomology, and none are given but such sorts as may, generally, be relied upon at least south of the midland counties. As in the October list, a * indicates those of the highest qualities, and size is indicated by 1st, 2nd, and 3rd.

Abbé Edouard—2nd size, very juicy, and with a fine aroma.
,, Perez—2nd, very melting, juicy, and highly perfumed.
Alexandre Lambré—2nd, delicious, with a fine honied and musky flavour.
Althorpe Crassane—2nd, a delicious, hardy, English Pear, that bears enormously.
*Amande Bivort—1st, very melting, savoury, and delicious.
Amande Double—1st to 2nd, delicious, ripens from September to November.
Amiral—1st, a savoury and delicious sort, the same as Arbre Courbé.
,, Cecile—2nd, delicious, rich and delicately perfumed.
Andrew Murray—2nd, melting, juicy and aromatic; a new Belgian sort, introduced by me in 1870.
*Ange.—2nd, this delicious Pear is the same as Nôtre Dame de Longues, which is sold as a distinct kind.
Angélique Leclerc—1st, compact, melting, and delicious; tree a great bearer.
Arthur Bivort—1st, melting and delicious, and a very handsome fruit.
Auguste de Boulogne—3rd, buttery and highly flavoured.
,, *Royer—2nd to 1st, a beautiful, rich, acidulated, and delicious fruit.
*Augustine Lelieur—2nd, rich and honied, skin very thin; in eating for three months.
*Belle et Bonne de la Pierre—2nd, very melting, sweet-scented, and delicious.
,, Julie—3rd, a delicious little sort, highly perfumed, and savoury.
,, *De Noël—2nd, a delicious sort; ripe from October to January.
Bellissime d'Automne—2nd, delicious, rich, and melting; a great bearer.
Bergamotte d'Automne—3rd, a well-known, delicious sort; bears abundantly, and keeps in eating till Christmas.
,, Sageret—2nd, very melting, with granalous flesh and highly perfumed.
Bernard—2nd, juice very abundant, acidulated, and delicately perfumed.
*Bezi Espéren—2nd to 1st, melting, very juicy, sugary, and aromatic.
,, Incomparable—2nd, very melting and juicy, with a delicious aroma.
,, De la Pierre—2nd, juice excessive, acidulated, sugary, and delicate.
,, Saint Waast—2nd to 1st, very juicy, and agreeably perfumed.
Beurré Allard—3rd, soft and melting, very sugary and perfumed.
,, Bachelier—1st, melting, juicy, sugary, and with a delicate aroma.
,, *Berckmans—2nd, juice excessive, with a delicious and refreshing flavour.
,, *Bosc—1st, a well-known, delicious sort, sometimes reaching 1½ lbs upon a wall.
,, Brougham—3rd to 2nd, a fine hardy, melting, and sugary Pear, of English growth.
,, Chatenay—3rd, one of the sorts that do best in cold situations, very superior, juicy, highly perfumed, and savoury.
,, Defays—2nd to 1st, juice very abundant, delicious, and delicate.
,, Delannoy—1st, melting and delicious.
,, *Fidéline—2nd, rich, melting, refreshing, and delicious.
,, Flon—1st, very large, juicy, sugary, aromatic, and agreeable; often ripe in October.
,, Gendron—1st, and generally 1st quality, ripe from October to June, and resembles the Chaumontel in everything but flavour.
,, Langelier —2nd, flesh melting, juice abundant and savoury.
,, Millet—1st, melting, juice abundant, sugary, and deliciously perfumed.
,, *Phillippe Delfosse—2nd, very melting, very juicy, sugary, and highly perfumed.
,, *Rance—1st to 2nd, a well-known delicious fruit, especially from a wall; like Monarch, and a few others, this is in eating condition for two or three months.
,, Reine—2nd, as round as an Apple, very juicy, and highly flavoured.
Bishop's Thumb—A well-known Pear, and an immense bearer, but only second rate as regards quality.
Bon Gustave—2nd, juice excessive, sugary, and savoury.
,, Parent—3rd, sugary, aromatic and agreeable.
Brandes St. Germain—3rd, exceedingly melting, juicy, and highly flavoured.
Brindamour—2nd, juice excessive, perfumed, and savoury.
Broom Park—2nd, juice plentiful, sugary, and refreshing in eating; two to three months.
Calebasse de Bavay—2nd, flesh fine and melting, extremely juicy and perfumed.
Castelline—1st, melting, very juicy, and highly perfumed.
*Chaumontel—2nd to 1st, a well-known and peculiarly-flavoured sort.
Chasseurs—1st, juice abundant and agreeably perfumed.
Clément Bivort—2nd, flesh melting, juice abundant and agreeable.
Colmar—1st, half-melting, juice excessive, sugary, acidulated, and perfumed.
,, d'Alost—1st, juice very abundant, sugary, and savoury.
,, d'Aremberg—1st, a fine showy sort, but only second-rate.
*Comte de Flandres—1st, very melting, very juicy, and very savoury.
Comtesse de Chambord—2nd, very melting, juicy, sugary, with a fine aroma.
*Conseiller Ranwez—1st, fine, melting, rich, sugary, and agreeable.
*Court Queue d'Automne—2nd, melting, juice abundant and aromatic.
Crassane—2nd, melting, juicy, and a delicious autumn Pear.
Dhommée—2nd, fine flavour, like that of the Swan's-egg.
Dr. Capron—2nd, melting, juicy, rich, sugary, and finely flavoured.
,, Koch—2nd, melting, very juicy, acidulated, and deliciously perfumed ripe from September to November.
,, Trousseau—1st, flesh melting, juicy, refreshing, and aromatic.
*Downton—2nd, very melting, sugary, acidulated, and highly flavoured.
Doyen Dillen—1st, melting, juice excessive, sugary, and perfumed.
*Doyenné du Comice—1st. This is, in my estimation, the finest of all Pears, more especially when grown on the Quince Stock.
,, *Flon Aîné—1st, very melting, juice abundant and very sugary, with something of a rose scent. This is another of those valuable Pears that ripen for nearly three months in succession.
,, Goubault—2nd. Another delicious kind, ripening in succession for two months.
,, de la Grifferaye—2nd, flesh half melting, fine, and finely perfumed; a successional ripener for two months.
,, Sterckmans—1st, fine, very melting, juice excessive, sugary, and with a savoury aroma.
*Duc de Nemours—1st, flesh fine and melting, juice very abundant and highly perfumed; quite different from Beurré Navez, which is often sold for it.
*Duchesse d'Angoulême panachée—2nd, fine, melting, and delicately perfumed. This is a beautiful golden-striped sort, both tree and fruit being so.
,, Anne—1st, flesh fine, melting, sugary, acidulated, and perfumed.
,, *de Mars—A delicious fruit, Seckel flavoured, the tree a dwarf grower, and the fruit successional for three months.
*Duhamel du Monceau—1st, flesh melting, juice very abundant, refreshing, and very delicate.
* Dumon Dumortier—2nd, very fine, very melting, very juicy, and deliciously perfumed.
Eyewood—2nd, rich and delicious, with a rose-scented perfume.
*Fondante de la Roche—2nd, flesh fine and melting, juice very abundant, sugary.
*Forelle—2nd, a beautiful kind, acidulated, and aromatic; very variable in shape.
*Général de Lourmel—1st, very melting, very sugary, with an agreeable perfume.
*Glou Morçeau—1st, a well-known, delicious Pear.
*Grand Soleil—2nd, melting, juice excessive, sugary, with a fine aroma, and delicately perfumed.
Hébé—1st to very large, flesh fine and very melting, juice abundant, sugary, and very acidulated. I imported this splendid Pear from America, in 1870; it was a seedling between Easter Beurré and Duchesse d'Angoulême.
Henri IV.—1st, a handsome, finely-flavoured Pear, but decays quickly.
Jean de Witte—3rd, flesh melting, juice excessive, sugary, and perfumed.
*Joséphine de Malines—3rd, flesh very fine and melting, juice excessive, acidulated and perfumed.
*Jules d' Airoles (of Leclerc)—Flesh half-melting, juice abundant, very sugary, and deliciously aromatic.
,, d'Airoles (of Grégoire)—Flesh melting, sugary, and acidulated.
*Leopold I.—1st, very melting, very juicy, sugary, and delicately aromatic.
*Lucie Audusson—1st, flesh melting, juice abundant, and highly perfumed.
*Madame Bonnefond—1st, flesh very fine, melting, and delicious, juice abundant and highly flavoured. It was first sent out in 1867, by M. Liabaud, of Lyons, and I introduced it in 1872; a great bearer.
,, Durieux—2nd, very melting, juice excessive, sugary, and aromatic.
,, Henri Desportes—2nd, flesh very fine, very melting, juice abundant, and exquisitely flavoured.
,, *Loriol de Barny—2nd to 1st, flesh very melting and fine, juice most abundant, very sugary and aromatic; generally without cells or seeds.
Madame Verté—3rd to 2nd, half-melting, juice abundant, perfumed and savoury.
Marie Parent—1st, flesh fine, melting, sugary, acidulated, and perfumed.
Marquise—1st, flesh breaking, rich, acidulated, and delicately musky.
*Marshal Wilder—1st, flesh very melting and fine, juice excessive, sugary, and deliciously perfumed.
Mas—2nd, flesh melting, juice very abundant, sugary, acidulated, and perfumed.
*Napoléon Savinien—2nd to 1st. Here this fine Pear ripens in November and December. As a late melting sort, it is delicious; in peeling it is finely rose-scented.
*Ne Plus Meuris of Van Mons)—1st, flesh very fine and melting, juice excessive and perfumed.
Neill—1st, flesh fine and melting, juice abundant, sugary, and delicate.
Nouvelle Fulvie—2nd, flesh melting and delicious, juice abundant.
*Olivier de Serres—2nd, very like Knight's Monarch in shape, size, colour, and qualities.
Onondaga—1st, melting, juicy, and sugary, but no great flavour.
Orange Mandarin—3rd, very melting, juicy, acidulated, and perfumed.
*Passe Colmar—1st to 2nd, flesh melting and odoriferous, juice excessive, very sugary, vinous, and perfumed.
Paternoster—1st, melting, very juicy, sugary, and with a fine aroma.
Président d'Osmonville—2nd, flesh sweet-scented, fine, and melting, acidulated, perfumed, and delicate.
Prince Consort—2nd to 1st, flesh melting, very juicy, and finely perfumed; a good bearer.
*Prince's St. Germain—2nd, flesh melting, juice abundant, exceedingly sugary, and finely flavoured.
Professeur Hennau—1st, flesh half-melting, aciduluted, and perfumed.
*Rousselet Vanderdecken—2nd, melting, delicious, rich, and sugary.
Royale d'Hiver—1st, flesh half-melting, juice excessive, very sugary, and with a savoury perfume.
Soldat Laboureur—1st, flesh melting, juice excessive, and deliciously perfumed.
Sorlus—1st, flesh very melting, juice excessive, sugary, and aromatic.
*Souvenir de la Reine des Belges—1st, flesh granulous, melting, juice abundant, acidulated, and delicate.
Suprème Coloma—1st, flesh fine and melting, juice excessive, sugary, and delicate.

Surpasse Crassane—2nd, flesh fine and melting, juice abundant, sugary, and perfumed.
*Triomphe de Jodoigne—1st, flesh half-melting, juice excessive, savoury, and perfumed.
Tuerlinckx—1st to very large, in fact, the largest melting Pear, being of much greater size than Jackman's Large; both sorts ripen well here.
*Van Mons Léon Leclerc—1st, one of the finest Pears in cultivation.
Vauquelin—1st, melting but firm, juice excessive, sugary, and acidulated.
Vert Longue d'Automne—2nd, melting, juicy, and finely-flavoured.
„ „ de la Sarthe—1st, melting, very juicy and musky; ripe here in November, but generally is so in September.
Vicomte de Spoelberg—1st, flesh fine, melting, very juicy, sugary, and savoury.
Virgouleuse—1st, half-melting and fine, juice abundant, very sugary, acidulated, and perfumed.

Above I have given a very carefully selected list of all the finest November Pears. I have many others that I felt tempted to give a place in the list; but, having set out with a determination to eliminate all that did not fully reach the highest grade in quality, I reluctantly withheld some kinds that were, by comparison, only a little lower in the scale than those just named. I have now before me the task of arranging the December list, which I trust to have ready for your readers as a New Year's gift. My task is now getting easier, as every month the sorts to be examined are decreasing in number. To select the 370 sorts given in the October and November lists I have had to examine at least double the number of kinds. The sorts indicated by an asterisk are about 103. Those alone would form one of the choicest collections of autumn Pears that could be made.

Merriott. J. Scott.

ORANGES AND ORANGERIES.

The labour expended on the cultivation of Oranges in tubs in old times was out of all proportion to the service rendered by them in the way of decoration. I have seen several noble terraces, where the removal of the Oranges to their winter quarters was the greatest improvement possible, for the contrast between the luxuriant Laurels and Bays and these inferior decorative plants was marked in the extreme. The introduction of fine foliaged plants to our gardens, especially such hardy ones as Yuccas, which are thoroughly fitted for adorning terraces and parterres, has done much to supersede the usual inmates of the Orangery, which appeared equally out of place, either in the full glare of the terrace or when their defects were partially concealed in their dreary looking winter quarters. When the old Orangery was replaced here by a conservatory the large beds in it intended for permanent plants provided a good situation for the old occupants of the Orangery, some of which had been in their tubs for an indefinite period. The beds were emptied to the depth of 4 feet, and at the bottom we put broken bricks to the depth of 18 inches, and covered them with turf to keep the drainage perfect, the remainder being filled up with a good rough compost of turf, peat, leaf mould, and old mortar rubbish. In this the old worn-looking subjects were planted. By keeping up a most genial atmosphere, and syringing the stems frequently, they soon showed signs of returning health, the Oranges, especially, sending out both flower and wood buds from the bare hard stem that had not produced a leaf for years. The bloom was so abundant the following year that we picked off thousands in order to concentrate the energy of the plants in the growing buds, only leaving enough for a good crop. These are now ripening, as fine fruit as can be desired, that cluster amongst the deep green foliage, and are really interesting and decorative objects, very different from what they were in their best days in tubs, while the labour attending them is greatly reduced. When associated with Camellias, Myrtles, New Zealand Flax, and such plants as flourish in temperate-houses, the Orange tree is indeed a noble object, bearing, as it does, three distinct crops of fruit at one time, and blossoms that rival our choicest Orchids for delicacy of perfume and purity of colour. I would therefore strongly advise all who have Oranges in tubs, the appearance of which is not satisfactory, or such specimens as one often sees in our public gardens, to plant them out, when they will repay all the care bestowed on them, and the owner will soon be able to gather his own Oranges in abundance. When arranged with some of their fresh green foliage attached, Oranges form a by no means unimportant addition to our home-grown dessert fruits.

Henham. James Groom.

CORNISH GILLYFLOWER APPLE.

This really excellent Apple, brought to your notice by the Rev. T. W. Boscawen, is little known beyond Cornwall and Devon; and, even there, it is not very generally cultivated, on account of its being a shy bearer, especially when young—not altogether from the fact that it does not bloom freely, though this is so in part, but because the blossoms are delicate. It is quite unlike most varieties in its general character. The growth is thin and wiry; and, when in fruit each shoot, by its own weight, is curved, or perhaps weighted down quite perpendicularly. I think it will never become generally cultivated in gardens for another reason besides the above. It will not tolerate the knife. To treat it as we do pyramids and espaliers is out of the question, as it produces its bloom buds only on the extremities of the last year's shoots. Should you, however, wish to enjoy this fine-flavoured Apple, let it grow at its own free will in the form of a half standard. Give it a sheltered position, and you may reasonably expect to succeed, when the tree gets well established; remember we do not get Cornish easterly winds in all parts of the country. Does Mr. Boscawen's tree grow on a wall, as he says an "eastern aspect?" I wonder if it is really so that the Apple originated in that Truro cottage garden! I only know that my father was very fond of its fruit, and when a lad, some twenty-four or twenty-five years since, I have often heard him speak of a very large tree of it growing at Ashcoombe, near Dawlish, in Devon. It was a remarkable tree, because it was known to be an exceptional year if it did not produce fruit enough to pay the cottage rent—about £3 I should think. It may never be known in which of the two counties it originated, but it is easy to understand that it would be soon carried from one to the other by miners. I have heard that it does well on the Paradise Stock. Can anyone inform me if this is so?

Hardwicke Grange. John Taylor.

TRANSPLANTING ESTABLISHED VINES.

Knowing how easily Vines that are not in a satisfactory condition may be lifted, the borders renewed or altogether re-made if desirable, and the Vines re-planted, without losing a crop, if the work is quickly and properly done at the right season, one is apt to feel surprise that so many failures should arise mainly from deficient root action. The best time for preparing the work is either just before the leaves fall, or just before growth commences—the former for choice—but the borders should be covered with shutters or something to throw off heavy rains and snow during winter, before the roots have fairly taken possession of the new soil. In doing work of this kind, although no one should unnecessarily mutilate the roots, still I have always found that shortening back a long naked root ultimately increases its productive power. This anyone may ascertain by examining the number of healthy fibres that start from the point where the amputation took place. It also tends to keep the roots more at home, and, as a consequence, more under control. As bearing upon the tenacity of life in Vines I may relate an incident that came under my notice in Norfolk some twelve or fourteen years ago. It was decided to remove, from one of the houses, the Black Hamburghs, and to plant in their place a later kind. Probably some would have preferred to have grafted the desired kind on the Hamburgh, but in this case it was thought best to grub them up. This was accordingly done, and they were cast on the rubbish heap. How long they remained there I forget, and my notes do not say, but it occurred to the gardener one day as he saw them lying there to give them another trial. They were carefully trimmed and planted into some large crates, and the crates afterwards plunged into a bed of leaves in a lean-to forcing-house. At the time of my visit early in the spring they were carrying a fair crop of very good Grapes well coloured and finished, and the Vines looked so strong and vigorous that one might easily infer that, the following year, they would do still better. No doubt the result was due in a great measure to the encouragement they received from the bed of leaves, into which the white roots could be seen penetrating in all directions. I am not an advocate, in all places and under all circumstances, for bottom-heat for Vines; and I believe, in some instances, more harm than good is done by its application. At the same time, where it is desirable to stimulate root action, I have often seen its use attended with considerable benefit. Many good gardeners, although avowedly opposed to bottom-heat for Vines, still practice it to some extent, when they place on the borders a good bed of leaves, over which wooden covers are placed, to throw off heavy rains and snow, and assist in retaining in the borders the warmth accumulated by the summer sun. A bed of leaves a foot or so thick will accumulate moisture, and will, as a consequence, ferment—in a very mild form it may be; still, I think it is a recognition of the principle of securing root-warmth for Vines, especially those forced early. The object is to create or retain a certain temperature in the border, and whether that is done by covering up early, and so preventing the solar heat from escaping by radiaton, assisted afterwards by a very mild form of bottom-heat in the gentle fermentation of the bed of leaves—and this appears to be the most natural and least troublesome way—or whether by making a hot-bed on the surface of the border, or by means of hot-water pipes under the bottom, the object gained is the same; and I have seen very good results, in every way, obtained without any covering at all, with the exception of a slight mulching—barely sufficient to keep out frost. But this does not prove that, under certain circumstances, the practice of any or all of these methods may not be advantageous. The truth is, local conditions vary much, and the persevering, thoughtful man, if he cannot attain his end in one way generally will in another, and this may account, in some measure, for there being so many different ways and systems for securing any given object. E. HOBDAY.

Walnuts in Sand.—We are keeping Walnuts in sand, a plan which answers very well. We placed a layer of sand nearly dry at the bottom of a earthen pipkin, then a layer of Walnuts which had just been divested of their green shells, then sand and so on until the pipkin was full, taking care to have the top well covered. We take a few Walnuts out every day, wash them in two or three different waters, then wipe and dry them thoroughly. These precautions are needful in order not to have them gritty. They peel quite as well now as they did in September.—N.

Pears for the North of Scotland.—The two Pears named below, Beurré Navez and Comte de Lamy, have done so well with me in this and in former seasons that I venture to recommend them for similar cultivation. They are both fine-looking fruit, and the quality, especially that of the former sort, is excellent. It ripens immediately after Louise Bonne of Jersey, which with me has this season been particularly fine, both on espaliers and standards. Marie Louise, under similar treatment, is also large, russety, and fine. The year 1875 will be long remembered in the north of Scotland for its large crops of Pears, and the high quality of the fruit. Beurré Navez is described by Mr. Scott as follows:—"Roundish turbinate, bossed near the top; skin, greenish-yellow, slightly dotted with grey, patched and clouded with brownish russet, and often tinged with rose on the sunny side; stalk, long and bent, sometimes short and straight, inserted in a wide knobbed cavity; eye, large, half-closed, and rather deeply set; flesh, white, firm, half-melting, juicy, sugary, and acidulated, and with a delicate, musky perfume. The tree forms one of the handsomest pyramids possible, either on the Pear or Quince stock, and bears abundantly."—"Florist."

Some early Peaches.—Mr. Peters, of Wilmington, sent us during the last week in July a box containing specimens of the Early Beatrice, Early Louise, and Hale's Early Peaches, in order to show their comparative time of ripening. Early Beatrice was fully ripe, some specimens being over-ripe; the Louise was hardly mellow, and the Hale's was hard and unripe. Mr. Peters writes us, Aug. 2, concerning these sorts:—Early Beatrice Peaches were ripe and half gone one week ago. They are fully ten days or a fortnight earlier than Hale's Early. Early Louise is five to seven days earlier than Hale's Early. Beatrice has been fruited in many parts of Maryland and Delaware this season, and in all cases it comes up to all that is claimed for it. I had forty-one trees of it bearing full, and not one single Peach specked or rotted on the trees. Half the Hale's Early have now rotted on the trees. Early Beatrice colours well, is of fine quality, keeps well, and is a good shipping Peach; the tree is a profuse bearer. There was much doubt and uncertainty in the minds of some Peach growers about this Peach, many fearing it would not prove equal to what was claimed for it, but on an extended trial in the great Peach regions of Maryland and Delaware, all doubts are at an end, and with us it stands to-day as the very best well-tested early Peach, and must so stand until others are proved earlier and better in orchard tests in different soils and locations. The Peach crop is enormous with us this season. In some sections growers fear labour cannot be had to save one-half the crop. Growers are making great efforts to open fresh routes, and send their fruit to new markets in far-off western cities. The Pear and Apple crops are light. Slugs are doing much damage to our Pear and Cherry orchards.—"Cultivator."

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Huyshe's Princess of Wales Pear.—I consider this to be one of the best of our November and December Pears. It is larger than Marie Louise, and keeps longer. Its flesh is juicy, melting, and sugary, with a fine delicate bouquet. Its parents were Marie Louise and Gansel's Bergamot.—D. LUMSDEN, *Bloxholm Hall.*

Figs Not Ripening (see p. 507).—I have a Fig tree in a soil similar to that of "H. M. H.," and, like one of his trees, mine faces south and east. It behaved precisely as his is doing for many years, and I recommend him to follow my example, that is, protect with Fern thickly laid over all the tree early in November, and not to remove it till late in April, or, if Fern is not to be had, with Spruce Fir boughs. For ten years I have never failed to have a large crop of Figs—the result of this treatment.—W. R. O. G.

The Tom Put Apple.—This is a Somersetshire Apple raised by a clergyman of the same name, and once vicar of Ryme, near Yeovil. He was in his day a great pomologist, and raised several fine Apples. There are three sorts bearing his name, viz., the White Tom Put; the one I now send you; and another, of which I, at present, cannot remember the distinctive name. He endeavoured to leave behind him an Apple unsurpassed for good qualities, and I think he has succeeded, for, as regards fine colour, Tom Put equals the handsomest even of American Apples, and as to quality few are better.—J. SCOTT, *Merriott.*

THE FLOWER GARDEN.

GARDEN VEGETATION IN NOVEMBER.

By JAMES M'NAB, Royal Botanic Gardens, Edinburgh.

NOVEMBER, from beginning to end, was remarkable for wind, rain, frost, and snow, the excess of the two latter being exceptional, at least, in Edinburgh. On seventeen mornings, the thermometer was at or below the freezing point, the lowest markings being on the 9th, 10th, 11th 12th, 13th, and 27th, when 26°, 19°, 18°, 27°, 22°, and 27° were respectively indicated. The highest morning temperatures were on the 4th, 5th, 6th, 17th, 18th, and 19th, when 47°, 45°, 44°, 42°, 42°, and 43° were indicated. The united temperatures below 32° during the month amounted to 80°, being 18° more than had been registered here during any of the November months, previous to this, for the last thirteen years. The highest number of degrees was during November, 1864, when 62° degrees of frost were recorded; and the lowest during November, 1872, when 17° only were registered.

The following table gives the result of November frosts for the last thirteen years:

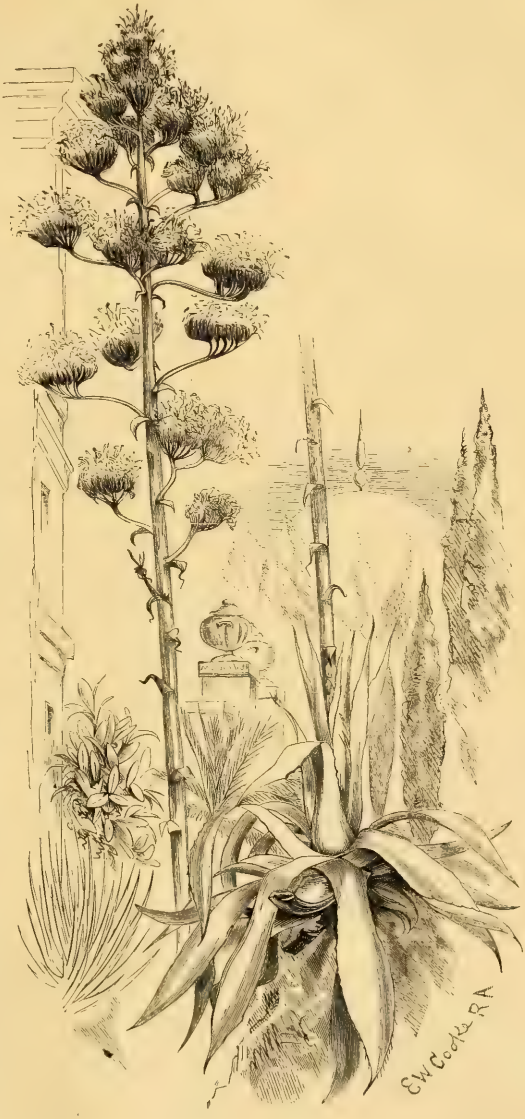
November, 1863 . . .	35°	November, 1870 . . .	53°
„ 1864 . . .	62°	„ 1871 . . .	39°
„ 1865 . . .	43°	„ 1872 . . .	17°
„ 1866 . . .	33°	„ 1873 . . .	35°
„ 1867 . . .	40°	„ 1874 . . .	18°
„ 1868 . . .	42°	„ 1875 . . .	80°
„ 1869 . . .	58°		

With few exceptions, most of the leaves remaining on deciduous trees at the end of October fell off during the past month. On the 30th of November, leaves of a yellow and green colour were, however, still on the Quince (Mespilus germanica). The Deciduous Cypress (Taxodium distichum) was also covered with leaves of a rusty brown colour; Quercus fastigiata was furnished with light brown leaves; and Q. pannonica only had leaves on the points of the shoots—all pendent, and of a yellowish-brown hue. Sorbus vestita had scarcely shed a leaf, although the whole of its foliage was partially decayed. This is a pyramidal-growing tree, and presents a singular appearance at this late season, being covered with thick leathery foliage of a light ash colour. Unimpaired leaves were still to be seen on the Liquidambar, Rhamnus catharticus, R. frangula, and Wistaria sinensis, all of a greenish tinge. Among flowering shrubs, the Ivy, Cydonia japonica, Arbutus Unedo, Laurustinus, Escallonia macrantha, and Jasminum nudiflorum, were those most prominently in bloom on the 30th of November. Among the best of the fruit-bearing trees and shrubs must be mentioned the Cotoneaster microphylla, Snowberry, Pyracantha, Thorns, Yew, and Holly. The berries of the latter are, however, disappearing fast; the frost experienced during the month seems to have ripened them, and thus rendered them more palatable to birds than they generally are at this season of the year. Haws and Yew berries are also disappearing from the same cause.

On the rock-garden flowers were only to be seen on twenty species of plants, the most conspicuous being was the Helleborus niger maximus, one of the most interesting hardy herbaceous plants for blooming at this season which we possess. It is a kind which has been long cultivated in gardens in Aberdeenshire; it blossoms much earlier than the common Christmas Rose (Helleborus niger), and its blooms are much larger and remain long in perfection. This variety bears several flowers on a stalk, which is generally about 10 inches in length; the leaves are likewise more persistent than those of the ordinary Christmas Rose, larger, and of a leathery texture. Besides the Christmas Roses we had also in bloom, on the 30th of November, Aster Reevesii, Lithospermum fruticosum, Veronica rupestris, Gentiana acaulis, Primula vulgaris rubra, Calluna vulgaris Alportii, C. v. Serlii, Erica hybernica autumnalis, E. Watsonii, E. ciliaris, E. Maweana, E. vagans grandiflora, and Sternbergia lutea. This Amaryllid has long been cultivated in the gardens here, but it rarely flowers, evidently from the roots not being sufficiently ripened during summer. When, however, the rock garden was being constructed, a few of the higher compartments facing the south, and surrounded on three sides with high stones, were left vacant as unsuitable for the ordinary Alpine plants which are apt to get burnt, in such situations, from exposure to the sun, and in these compartments the roots of the Sternbergia were planted two years ago. These plants are now vigorous and flowering freely, and thus a choice late-blooming herbaceous plant has been added, as it were, to our collection. In more southern districts it generally flowers profusely; and, therefore, needs less care.

ALOE AT WISBEACH.

For the sketch from which the accompanying illustration has been prepared, we are indebted to Mr. E. W. Cooke, R.A., of Glen Andred, who has also furnished the following account of it:—I went to Wisbeach a few weeks ago on a short visit to Mr. Peckover, where, in front of his house, a very noble Aloe was in bloom, the stem of which was 20 feet in height. It had been so well watered that its succulent leaves had not shrivelled in the least, which they do in dry climates. In fact, the moisture in the foliage supplies the thick flower-stem; then it perishes altogether and forms decayed vegetable matter for the numerous progeny of young plants that crowd round the base of the parent. A finely-striped Aloe was by its side, some Yuccas, and a young Date Palm. On the embowered lawn, in the rear of the house, I found some very remarkable Conifers of a great height, and most symmetrical in form, and a grand Paulownia imperialis. In another beautiful garden connected with the residence of Mr. Alexander Peckover, a son of the former gentleman, large numbers of very fine Conifers were luxuriating, and also one of the tallest Araucarias probably in England; together with a Salisburia about 60 feet in height. Bordering on the Fens the soil seems most congenial to the vigorous growth of trees and Conifers, such as Pinus Pinsapo, grandis, nobilis, Webbiana, lasiocarpa, Benthamiana, various Cypresses, Junipers, Taxodiums, Retinosporas, Thujas, &c., and even Thujopsis, Sciadopytis, and Biotas. Magnolia purpurea luxuriates under my window, where it has fruited. A cone dropped off in my hand the other day, and soon after the carpels burst open and displayed a multitude of the most brilliant scarlet seeds imaginable. Another cone remains on the tree, but is not half the size. I saw in the Botanic Gardens at Pisa a very large round tree, 50 feet high, of M. grandiflora, covered with thousands of cone-like seed-vessels just at the bursting point. They were quite of the same character, as to colour, as those which ripened with me. That tree, a Cedar of Lebanon, and a tall Salisburia were purchased of Messrs. Loddiges seventy years ago by Professor Sair of Pisa.



DOUBLE-FLOWERED BEGONIAS.

The floral committee of the Central Horticultural Society of France, under the presidency of M. Burelle, have awarded their highest or first-class certificate of merit to M. Victor Lemoine, of Nancy, first, for his beautiful double-flowered Begonia, Gloire de Nancy, which resembles in its foliage and habit of growth the well-known B. boliviensis, modified by various crossings; this compact plant literally covers itself with large and very double flowers, which remind one of those of a Ranunculus; these flowers are of a new and very beautiful shade of brilliant vermilion; an unusually fine variety. Second, to a collection consisting of seven varieties of tuberous-rooted Begonias, four of them producing double flowers, and named respectively Salmonea plena, having the habit of Veitchii, large and very double rosy-salmon coloured flowers, borne on very upright foot-stalks; Monsieur Lemoine, similar to the last-named variety, but with orange-vermilion flowers; President Burelle, with large double flowers, borne on inflexible foot-stalks of a bright red shaded with scarlet; W. E. Gumbleton, an intermediate variety of very upright habit, producing medium-sized double flowers, of a rosy-salmon colour, with an orange centre; one semi-double, named Monsieur Marcotte, with large semi-double rose-coloured flowers, lightly flaked with salmon, and two with single flowers; Wilhelm Pfitzer, with very large flowers, of very upright habit, and of deep carmine-red colour, with a centre of a lighter shade; and Eldorado, with habit intermediate between B. Pearci and Sedeni, and producing large, well-rounded flowers, with rounded petals, of sulphur-yellow inside and glossy rose-coloured outside. The committee add, in their report to the Society, that they have only been able to describe the blooms of these beautiful plants, the specimens submitted to them having suffered considerably during the voyage from Nancy to Paris, and from the delay in delivering them to the Society, even after they had reached the capital. So far as they were able to form an opinion, however, they are all of excellent habit of growth, with flowers well raised above the foliage, and varying in colour from bright scarlet to pure yellow. The whole of them are the result of various crossings and hybridisations of B. Veitchii and rosæflora with B. Pearcei and other specific varieties, such as boliviensis, Sedeni, &c. The committee congratulated M. Lemoine on the eminently successful result of his hybridisations of this beautiful family of plants, and thanked him, on behalf of the Society, for sending them for inspection.

THE MALLOW TRIBE OF PERENNIALS.

This contains several showy and useful perennials, which bloom in autumn or late in summer. Foremost among them, in size, at all events, is the old Althæa rosea, the parent of our garden Hollyhock, which has almost disappeared from cultivation of late years, but which, like many other good old favourites, have again "a good time coming." Malva moschata, a British plant, is a handsome and strong-growing perennial, bearing rosy flowers, 2 inches across. It grows 2 feet or more in height, with much cut leaves, but is, however, far surpassed by its pure white variety, M. moschata alba, which resembles it in all respects but the colour of its flowers. They require light soil. M. Morenii is another handsome plant, with rather larger rose-coloured flowers in terminal clusters, and much divided leaves, and of about the same height. It requires good garden soil, and does not thrive on that which is poor or gravelly. The fine Hibiscus militaris is not hardy in the mixed border, though it may possibly be so in well-drained soil, under a south wall, particularly if elevated; but we have two good plants in Hibiscus moschatus and H. moschatus roseus. Both grow to 5 feet or so in height, and are vigorous plants, if placed in a warm situation, but where, at the same time, the roots may have access to a certain amount of moisture, which is essential to their well being. The flowers of the former plant are of a very pale rose, with darker centre, 3 or 4 inches across; whilst those of H. roseus are of a bright rose colour, with crimson veins through the petals. They are fine and handsome plants, but, I fear, are not true perennials, though they may possibly bloom for two or three years in succession. I have found them fail to flower when in cold positions. Another plant of this family, of most attractive appearance, when in bloom, is Callirhoe involucrata, with very showy magenta-crimson flowers, 2 inches across, leaves deeply-divided, and covered, as is the stem, with short hairs. It is a singularly handsome plant for drooping over the rock-work or steep banks. I fear, however, that it is not much better than the annual, on the level ground, at all events, but is fortunately easily raised from seed. Sida malvæflora is another handsome plant of the same family, and requires no care in cultivation. It grows 2½ feet in height, with pale rose-coloured flowers, with much divided leaves, as most of the species have. S. incarnata is scarcely hardy. One of the prettiest of all the Mallow tribe is undoubtedly Modiola geranioides, which is well suited for the front row of the mixed border, and which is happily perfectly hardy. It is a tuberous-rooted plant, blooms rather earlier than the rest of its family, and continues in flower for a month or more. The colour of the flowers is a fine purple-rose with a dark centre. It only grows 4 inches in height, but trails along the ground, rooting at the joints, and soon covers a considerable part of the border.

Oxon.

LILIES AND AMARYLLIDS ON CHALK.

I believe I am as fond of Lilies as Mr. Elwes, Mr. Wallace, Mr. Wilson, or Mr. Frank Miles, and I have read with the greatest interest their various communications on Lily culture in your columns. But, alas! I live upon solid chalk rag, with a 3-feet deep super-soil of sticky grey clay, which is like putty in winter and baked as hard as a brick in summer—I am perpetually being burnt or frozen up; and yet the White Lily (Lilium candidum) makes a gorgeous show, unless we have some late spring frosts; L. testaceum, martagon, white martagon, and tigrinum, flourish; croceum, bulbiferum, and pyrenaicum, do fairly well; I have succeeded in getting chalcedonicum, pomponium, pardalinum superbum, auratum, dalmaticum, and Thunbergianum to flower; and L. Humboldtii comes up healthy and strongt but goes off when about a foot high. I have just been taking ou, the soil of a narrow bed nearly 3 feet deep and filling it with a mixture of peat, leaf mould, cocoa refuse, silver sand, and yellow loam, the top spit consisting of old pasture and the ant hills thrown up on the only boggy field we have in the parish, and in this I mean to plant all the rarer kinds I can procure, together with Amaryllis formosissima, Vallota sanguinea, Hedychium Gardnerianum, &c., covering all the more delicate sorts with cocoa refuse during the winter months. Amaryllis Ackermanni pulcherrima stood the past winter perfectly, thus treated; and, though it did not flower, came up very strongly, and has increased considerably. I had the bulbs from a garden in Derbyshire, where this Amaryllis has been grown as a hardy bulb for three years, and flowers as strongly and profusely as the common White Lily. I should advise Mr. Miles to try it at Bingham, and any other Amaryllis he can procure. What is hardy in Derbyshire ought to be equally so in Nottinghamshire. A. pulcherrima was in bloom in Derbyshire till the late frosts set in.

Drayton-Beauchamp Rectory, Tring. H. Harpur Crewe.

Storing Bedding Pelargoniums.—In common with all practical horticulturists, I store very large quantities of bedding plants in winter, especially Pelargoniums. Now, it is a well-known fact, that old plants not only flower more freely than young ones, but are less liable to ramble. Old plants, therefore, for bedding, are favourites with us. Some years back I took up my Pelargoniums in the autumn, and potted them singly, but by following this plan, the space occupied was too great, nor can the time always be spared for the operation. I therefore have discarded pots altogether, and have taken to boxes, which are much to be preferred, and the plan I am about to describe is not my own, but was suggested by one of my men, whom I always like to encourage, if their suggestions are sound. When the autumn leaves begin to fall, the first thing to be done is to lift the Geraniums, cut off both roots and branches close to the old stems, dip the tops of the plants in lime to prevent bleeding, and insert thickly in 3-feet boxes, each of which will hold from 200 to 250 plants; they can then be placed either in frames or Vineries—the latter are the best—and they require but one watering to settle the soil until they break, and then only in small quantities. They remain in these boxes until the first week in March, and I leave them plenty of room in the late Vineries, in which I erect a sufficient number of stages upon which to set the boxes. A quantity of Moss being in readiness, we take out the imprisoned Geraniums, and find them well-rooted, and the shoots so firm that breaking them scarcely ever happens. The Moss should be well teased-out, and with an open hand we take up the Moss, put in a little soil, and securely tie up the roots, replacing them in the boxes, but more widely apart. There they remain until throughly well-rooted, which takes about six weeks to accomplish. They are then hardened off in the usual way and planted in their places.—R. Gilbert, *Burghley.*

Asteriscus retusus.—This is a beautiful and free-blooming composite plant, which flowers in September and October. It is a dwarf plant growing only a few inches high, very compact in habit, and well adapted for a front line in herbaceous borders or rock-work, The leaves are about 1½ inches long, spathulate in form, with a very broad blunt point, and clothed with short soft hairs. The flowers occur singly on short stalks, and are 1½ or 2 inches broad, the ray being spreading and flat; both disc and ray are a clear shining ochre-yellow. Unlike many of the composites, particularly of the section to which it belongs, this species remains open in sunshine or cloud, at noon and at night, and the flowers last a long time in bloom.—"The Gardener."

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

A few Good Pompone Chrysanthemums.—In addition to the list of these given at p. 486, I would recommend Model of Perfection; Lilac Gem; Prince of Orange, a fine late kind; Saint Thais, bronzed; Marabout, white; Souvenir de Jersey, yellow; Miss Julia, bronzed; Nelly, a late white kind with an orange centre; Fairy Nymph, white; and Golden Aurore.—V. Langlois, 92, *St. Saviour's Road, Jersey.*

Monthly Roses.—I often wonder that the common monthly or China Rose is not more generally planted as a wall shrub than it is, especially in sunny positions in the southern and south-eastern counties. I saw in Sussex the other day an old wall against the buttresses of which this Rose was planted, and, notwithstanding the late snows and frosts, hundreds of fresh pink buds might now be gathered from it.—B.

Gentiana gelida.—I regret to say that I am unable to give "W. T." (see p. 514) the information which he desires in reference to this Gentian. The plant which I have had sent to me as G. gelida, seems to me to vary very little, if at all, from G. septemfida, and, as I have before stated, I have been told the same thing by more than one nurseryman. In Ware's catalogue, G. gelida is described as being "of easy culture and of a light blue." "W. T." says his plant is of a darker shade of blue. I shall, therefore, until I get more information, consider the two plants identical.—Oxon.

Crassula lactea.—This is now covered with panicles of milk-white star shaped flowers, and forms an attractive object both in cool greenhouses and windows. It is, indeed, one of the best window plants that we possess.—B.

THE GARDEN IN THE HOUSE.

CHRISTMAS TABLE DECORATIONS.

By ANNIE HASSARD.

Christmas Day generally finds a large number of guests assembled in many households, and both on this account, and because an effort is made at this season to give everything as festive an appearance as possible, more attention is devoted to the decorations of the dinner table than is ordinarily the case at other periods of the year. Where a rather large-sized table is to be florally decorated it will require three vases down the centre, or some other equally large decoration, but for a small or ordinary-sized table one large centre stand, with smaller tubes or vases grouped around it, will be found quite sufficient. Should this not be deemed so, however, a pair of small well-grown plants can, if it seems desirable, be added. No colours look more effective at this season than scarlet and white, therefore, in the decorations which I purpose describing, I shall employ those shades as far as possible. In the centre of the large table I should place a compound trumpet-shaped vase—*i.e.*, a slender trumpet with three curved branches. As this form of stand is not made with a tazza at the base, I should place it in a very large plate or zinc tray, to form an artificial one. This can be filled in with sand or wood Moss, which will steady the stand, as well as keep the flowers fresh; whichever material be employed it must be well damped, the trumpets, of course, being filled with water, which should be quite clear, as, in these vases, water with impurities floating in it looks very bad. The vase having been thus prepared, its floral dressing comes next. Round the edge of the tazza should be placed a fringe, formed of the dark-coloured fronds of Maiden-hair (Adiantum cuneatum); next may be arranged four blooms or bracts of scarlet Poinsettia and four of Eucharis amazonica, filling in with white Primulas and scarlet Geraniums, and toning the whole down by means of a few lightly placed fronds of Maiden-hair of a lighter shade of green than those employed round the margin of the tazza. Rising out of each of the three curved branches should be an Arum bloom, associated with scarlet Bouvardias, white Primulas, Heaths, and fronds of Maiden-hair of a still lighter tint than those employed in the tazza, and the high centre trumpet might be finished off with a light plume, formed of Roman Hyacinths, white Epacrises, scarlet Bouvardias, and Maiden-hair fronds of a still lighter shade. In addition to these, a few long sprays of Lygodium scandens should be brought down from the trumpet, and twined lightly among the other branches. As regards the two outer stands, or those near the head and foot of the table, in place of vases a pair of Palms might be advantageously employed. These should be placed in plates or pans so as to hide the pots in which they are growing by means of flowers arranged round the base of each. Having made a bank of Moss round each pot, I should then build in an arrangement composed of white Azaleas, Epacrises, Bouvardias, Primulas, and scarlet Geraniums, with the addition of Fern fronds, mixed varieties of which should be placed round the edges. If the stems of the Palms look in the least bare, a spray or two of Lygodium has an excellent effect twined up each. In addition to these decorations, opposite to each guest should be placed a pretty button-hole bouquet or coat flower. A table of smaller size, which is dependent upon a single large floral arrangement for its decoration, should consist of a Marchian vase, dressed round the edge of the lower tazza with mixed varieties of Fern fronds, the tazza being filled in with white Chinese Primulas, Lilac, Heaths, scarlet Geraniums, and Maiden-hair Fern. In the upper tazza should be placed three white Camellias, some Roman Hyacinths, Heaths, and scarlet Geraniums, some Fern fronds being so placed as to droop gracefully over its edge. In the trumpet I should have blooms of white Cyclamen, Heaths, and scarlet Geraniums. A few spikes of Cyperus alternifolius in the bottom tazza would be an improvement. As I before remarked, should this not be deemed sufficient decoration, some specimen glasses can be grouped round the stand containing some of the varieties of flowers I have before enumerated, and at the top and bottom of the centre stand can be placed two pots of Ferns, flowering, or foliage plants, dropped into outer chain pots or ornamental cases. I shall not furnish any list of fruits, but leave that to the taste or choice of the decorator, and content myself with giving a few hints as to their arrangement. Amongst other foliage I should employ that of the variegated Hollies and Ivies, and also the Mistletoe, the white berries of the latter looking most effective associated with dark purple Grapes and nearly white Ivy leaves.

HEATED PLANT CASES.

In answer to "Philo-Flos," who enquires (see p. 478) as to the heating and management of plant cases, permit me to say that it would never do to plant over a coil of lead pipes, unless plenty of space were left for the heat to escape to the upper portion of the case, and even then the roots would be too warm. If "Philo-Flos" refers to my plant case, which is exhibited at Messrs. Dick Radclyffe's, in High Holborn, he will see by the directions that hanging pots and baskets are recommended, and that by means of proper supports the sides can be furnished with these, inside the case. If, however, planting out is a necessity with him, I should carry up a light coil of pipes from those below, and arrange so that the return only should warm the roots. The case should be divided into compartments, for it would be certain loss to have stove and greenhouse plants together; they must be separate both for convenience of management and exhibition; and the compartments should have different temperatures. The pipes should not be plunged in anything, but exposed to the air, or they will never give off sufficient heat without becoming too hot themselves. In Ward's cases, which are not heated in any way, many Ferns will exist for a long time, and some will grow, but in a heated case, unless all is arranged so that no accident can happen, the plants will be roasted or fried, and the more delicate ones will quickly go wrong. The heat must be regulated by self action, and the water must be arranged so as to be at once acted upon by the heat. In a cool case the air is not of so much importance, but in a warm case the result of want of ample ventilation in proportion to the amount of moisture is spot, rot, and death. Where everything is arranged as it ought to be, the most delicate Orchids will thrive, but in anything short of that, even a common Caladium would die.

H. Boyle.

Ivy in Dwelling-houses.—I cannot imagine Ivy to be unhealthy in rooms, or surely our American friends would not use it so much as they do in that way. At Portland, Maine, for example, it is a very common house-decorative plant, and it must be a very graceful and, at the same time, a very agreeable one, too. Mr. Wilson (see p. 513) should have ascertained whether it was injurious or not before he cleared his house of such a fine natural decorative plant as the Ivy must have been in his case. Should Ivy prove to be injurious, I would suggest that Ficus repens should be substituted for it. It resembles Ivy in habit, but is much smaller in leaf—*i. e.*, smaller than the large-leaved Ivies, but similar in size to the small-leaved kinds. There is no question that the Irish Ivy is stronger in smell than the Russian, Regneriana, or the variegated kinds; but, as far as my experience goes, Ivies do not smell badly unless touched or bruised.—Chevalier.

Root-work versus Rock-work.—In flat districts, rock-work, even though well constructed, has for the most part an artificial appearance, which it is impossible wholly to conceal, and, therefore, Mr. Pulham, in forming a rocky background to the conservatory here, kept in view artistic, quite as much as natural, effect. The material which he employed is called "tuffa," a light, porous stone, that absorbs water readily, and on which seedling Ferns and other plants flourish amazingly, if kept moist, without any soil whatever. Nevertheless, large pockets of soil were provided as the work progressed. All stone of a bright or glistening character should be avoided in the formation of rock-work; for, however well they may look, nothing will root on them, and virgin cork and similar substances are of too perishable a nature where much moisture is required to keep the plants healthy. For hardy Ferns and Alpine plants I am more in favour of root-work than rock-work, the former being suitable everywhere, but especially under the partial shade of trees, where vegetation is sometimes scanty. Under such circumstances, many valuable plants may be brought to greater perfection than they possibly could be in open borders, where, owing to digging and hoeing, they are often disturbed. When planted with forethought, so as to secure a succession of flowers at all seasons, root-work forms an interesting feature of the semi-wild garden.—J. Groom, *Henham.*

THE LIBRARY.

MOVEMENTS OF CLIMBING PLANTS.*

This essay first appeared in the "Journal of the Linnean Society," and is now given to the public in an enlarged form, illustrated by some good woodcuts. The work is entirely devoted to the relation of a mass of facts concerning climbing plants which have come under Mr. Darwin's own careful observation. These plants the author divides into four heads: those that twine spirally round a support, those endowed with veritable organs which, when they touch it, clasp it, those which ascend by means of hooks, and those which ascend by rootlets. Neither of the two latter classes, however, exhibit any special movements, and the principal portion of Mr. Darwin's work is therefore devoted to plants belonging to the first two classes. Of Bignonia Tweediana the author says:

> This species is closely allied to the last, and behaves in the same manner; but perhaps twines rather better round a vertical stick. On the same plant, one branch twined in one direction and another in an opposite direction. The internodes in one case made two circles, each in two hours and thirty-three minutes. I was enabled to observe the spontaneous movements of the petioles better in this than in the two preceding species: one petiole described three small vertical ellipses in the course of eleven hours, whilst another moved in an irregular spire. Some little time after a stem has twined round an upright stick, and is securely fastened to it by the clasping petioles and tendrils, it emits aërial roots from the bases of its leaves; and these roots curve partly round and adhere to the stick. This species of Bignonia, therefore, combines four different methods of climbing generally characteristic of distinct plants, namely, twining, leaf-climbing, tendril-climbing, and root-climbing. In the three foregoing species, when the foot-like tendril has caught an object, it continues to grow and thicken, and ultimately becomes wonderfully strong, in the same manner as the petioles of leaf-climbers. If the tendril catches nothing, it first slowly bends downwards, and then its power of clasping is lost. Very soon afterwards it disarticulates itself from the petiole, and drops off like a leaf in autumn. I have seen this process of disarticulation in no other tendrils, for these, when they fail to catch an object, merely wither away.

When plants climb by means of irritable organs, such organs may consist of modified leaves, branches, or, as in the case of the Vine, of flower-peduncles; but these different classes sometimes graduate into one another. The power of climbing appears to depend upon the curious rotatory movements performed by the growing plants. Hofmeister has observed that the shoots and leaves of all plants, while young, move after being shaken, and Körner also has noticed that the flower-peduncles of a large number of plants, if shaken or gently rubbed, bend to one side. This rudimentary power of movement has, in Mr. Darwin's opinion, been specialised and perfected in the case of climbing plants; and he thinks that leaf-climbers were, in the first instance, twiners, and subsequently became capable of grasping. It appears clear that the curious rotatory movements which are performed by the growing shoots of climbing plants, and which are sometimes in the direction of the sun, but more often take the opposite course, are essential to the power of climbing. Of these rotatory movements Mr. Darwin gives a most graphic account. For instance, speaking of an Asclepiadaceous plant, belonging to the genus Ceropegia, he says:

> I allowed the top to grow out almost horizontally to the length of 31 inches; this now consisted of three long internodes, terminated by two short ones. The whole revolved in a course opposed to the sun (the reverse of that of the Hop), at rates between five hours fifteen minutes, and six hours forty-five minutes, for each revolution. The extreme tip thus made a circle of above 5 feet (or 62 inches) in diameter, and 16 feet in circumference, travelling at the rate of 32 or 33 inches per hour. The weather being hot, the plant was allowed to stand on my study table; and it was an interesting spectacle to watch the long shoot sweeping its grand circle, night and day, in search of some object round which to twine.

In some cases, the plants really behaved as though endowed with sense, Mr. Darwin says:

> Several times I watched cases like the following: A tendril caught a thin stick by the hooks of one of its two extreme branches; though thus held by the tip, it still tried to revolve, bowing itself to all sides, and by this movement the other extreme branch soon caught the stick. The first branch then loosed itself, and, arranging its hooks, again caught hold. No other branches, as the tendril then stood, could possibly have touched the stick. But, before long, the upper part of the main stem began to contract into an open spire. It thus dragged the shoot which bore the tendril towards the stick; and as the tendril continually tried to revolve, a fourth branch was brought into contact. And, lastly, from the spiral contraction travelling down both the main stem and its branches, all of them, one after another, were ultimately brought into contact with the stick. They then wound themselves round it and round one another, until the whole tendril was tied together in an inextricable knot.

The sensibility of some tendrils is very remarkable. In one case Mr. Darwin found that a loop of thin thread, only 1-16th of a grain in weight, caused a temporary flexure. In another a touch with a pencil, so gentle as only just to move a tendril borne at the end of a long flexible shoot, was sufficient to cause it to become perceptibly curved in four or five minutes. Mr. Darwin says:

> Whilst the tendrils are revolving more or less regularly, another remarkable movement takes place, namely, a slow inclination from the light towards the darkest side of the house. I repeatedly changed the position of my plants, and some little time after the revolving movement had ceased, the successively formed tendrils always ended by pointing to the darkest side. When I placed a thick post near a tendril, between it and the light, the tendril pointed in that direction. In two instances a pair of leaves stood so that one of the two tendrils was directed towards the light and the other to the darkest side of the house; the latter did not move, but the opposite one bent itself first upwards and then right over its fellow, so that the two became parallel, one above the other, both pointing to the dark; I then turned the plant half round, and the tendril which had turned over recovered its original position, and the opposite one which had not before moved, now turned over to the dark side. Lastly, on another plant, three pairs of tendrils were produced at the same time by three shoots, and all happened to be differently directed; I placed the pot in a box open only on one side, and obliquely facing the light; in two days all six tendrils pointed with unerring truth to the darkest corner of the box, though to do this each had to bend in a different manner. Six wind-vanes could not have more truly shown the direction of the wind than did these branched tendrils the course of the stream of light which entered the box. I left these tendrils undisturbed for above twenty-four hours, and then turned the pot half round; but they had now lost their power of movement, and could not any longer avoid the light. When a tendril has not succeeded in clasping a support, either through its own revolving movement or that of the shoot, or by turning towards any object that intercepts the light, it bends vertically downwards and then towards its own stem, which it seizes together with the supporting stick, if there be one. A little aid is thus given in keeping the stem secure. If the tendril seizes nothing, it does not contract spirally, but soon withers away, and drops off. If it seizes an object, all the branches contract spirally. I have stated that after a tendril has come into contact with a stick, it bends round in about half an hour; but I repeatedly observed, as in the case of B. speciosa and its allies, that it often again loosed the stick; sometimes seizing and loosing the same stick three or four times. Knowing that the tendrils avoided the light, I gave them a glass tube blackened within, and a well-blackened zinc plate: the branches curled round the tube and abruptly bent themselves round the edges of the zinc plate; but they soon recoiled from these objects with what I can only call disgust, and straightened themselves. I then placed a post with extremely rugged bark close to a pair of tendrils; twice they touched it for an hour or two, and twice they withdrew; at last one of the hooked extremities curled round and firmly seized an excessively minute projecting point of bark, and then the other branches spread themselves out, following with accuracy every inequality of the surface. I afterwards placed near the plant a post, without bark but much fissured, and the points of the tendrils crawled into all the crevices in a beautiful manner. To my surprise, I observed that the tips of the immature tendrils, with the branches not yet fully separated, likewise crawled just like roots into the minutest crevices. In two or three days after the tips had thus crawled into the crevices, or after their hooked ends had seized minute points, the final process, a most curious one, commenced.

Mr. Darwin found in several plants that a shower from a syringe, which instantly caused the leaves of a Mimosa to close, had no effect upon the tendrils of a Passion-flower; whereas a loop of thread weighing 1-32 of a grain, which caused the tendrils to become curved, had no effect upon the leaves of a Mimosa; a fact which curiously shows how the sensitiveness has become differentiated in different plants. In Mr. Darwin's opinion leaf-climbing plants were originally twiners, and tendril-bearers were originally leaf-climbers; and certainly the disposition of the climbing species in the different natural order lends a strong support to this view.

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* "Movements and Habits of Climbing Plants." By Charles Darwin, M.A., F.R.S., &c. Second edition, revised. London: John Murray.

PAUL'S ROSE GARDEN.

We have received the fifth edition of Mr. W. Paul's "Rose Garden," a large and valuable work which appears much improved in this edition, and is embellished with good coloured plates of the newer Roses. We regret to see that Mr. Paul gives encouragement to the stiff old-fashioned style of Rose garden by reproducing some plans of them. There is no surer way of making Rose gardens unattractive than by arranging them in these formal and geometrical groups of beds. There really is no more occasion for a special Rose garden than for a Lily or a Crocus garden, for, as many of our readers may have observed, Roses look better when grouped with other plants, or here and there in isolated masses, than in such Rose gardens as that at Hatfield, where the Roses are all massed together like a regiment of infantry forming square. And even if it be thought desirable to have a garden specially devoted to the Rose, the best way is to plant them in beds simple in outline and large in size, with plenty of Grass between. The "Rose Garden" contains a full and trustworthy illustrated essay by Mr. Paul, jun., on the insects which infest the Rose.

The Parterre Album*.—This is a tastefully bound and elegant album with openings for cabinet, as well as for ordinary-sized, photographs, which are wreathed with floral designs, a page being devoted to each month, with designs from flowers of the season; six pages more to designs of Forget-me-nots, Woodbines, Jasmines, Sweet Peas, Convolvuluses, and Heaths. The designs are well printed chromo-lithographs.

THE KITCHEN GARDEN.

POTATOES FROM ONE POUND OF SEED.

In the spring of the present year appeared the announcement that 1,018 lbs. of Potatoes had been grown from 1 lb. of seed in America. This statement was so much at variance with all our pre-conceived notions of Potato culture, that it called forth expressions of unbelief from some of our noted growers who considered it nothing more than an attempt of the American seedsmen to increase the sale of their new varieties by reporting such wonderful results. After the astonishing quantities, however, that have been grown in England from the same weight of seed, the most incredulous will be inclined to believe that the American statement was by no means a fabrication. Although, not very well spoken of by many, the Hooper Potato competition has certainly done good in some respects, for it has shown us how rapidly it is possible for holders of valuable varieties to increase their stocks, whilst to raisers of seedlings it is also of considerable importance, for it will enable them to place their productions in the market in less than half the usual time, if the system I adopted is found to answer as well with English as it has done with American varieties, and I can see no reason why it should not. Therefore, our thanks are due to Messrs. Hooper for the liberal prizes they offered, and although those prizes have not been awarded for what they were offered, still, the good the competition has done should not, in justice to that firm, be overlooked. The way in which I grew the crop of Potatoes from 1 lb of seed, that has astonished so many, may well be termed a make-shift way; for the kitchen garden here being a small one for the requirements of the house, I had not a plot of ground of sufficient size that I could devote entirely to the growing of these Potatoes. I therefore, determined that they should in no way interfere with the arrangements I had made for the cropping of the ground, and by growing two crops at once, if my experiment with the Potatoes failed, I should have no great loss to lament. I had a piece of ground, 84 feet by 32, that had previously been occupied by Cauliflowers, and on which I intended to plant Celery, and it occurred to me that Celery and Potatoes would grow together. On this ground I put about six cart-loads of charcoal dust, lime rubbish, and old mortar, and a liberal dressing of hot-bed manure. The ground was then dug in the usual way, care being taken to make it as fine as possible. When the surface had become dry enough to work well, trenches for the Celery were marked out, 15 inches wide, the spaces between them being 33 inches. The spaces between the trenches were then given a slight dressing from an old Mushroom bed, and again dug, so as to thoroughly incorporate the manure with the soil. The trenches were then taken out in the usual way, and, when completed, the tops of the ridges were 2 feet in width. There were eight trenches and seven ridges, and on six of these ridges I planted the pound of Eureka Potatoes that produced 1,082½ lbs; the remaining ridge was planted with a portion of a pound of Snowflake, and the remainder of this pound of Snowflake was planted on an old Vinery border, which, being very rich, received no extra preparation. Both varieties were planted on the 13th of April; and now for the preparation of the sets. I purchased 2 lbs. of each variety from Messrs. Hooper in March, and on receiving them they were placed in seed drawers, with the base of each tuber uppermost. My motive for so doing was to encourage the eyes at that end to start as early as those at the other, or what I may term the growing end. This they will not do if laid on their sides, or with the growing end upwards. They were slightly syringed daily with warm water, and soon began to grow. When sufficiently advanced I examined each tuber, and carefully removed, with the point of a knife, the centre bud from each eye. This shoot was of no use for planting, my object in removing it being to induce more than one bud to grow from each eye. This answered very well, for, when I cut the Potatoes into sets, I was able, with great care, to cut three, four, and, in some cases, five, sets from one eye. As I had 2 lbs. of each variety, I chose those tubers from which I could obtain most sets, and then invited a number of persons (almost a score) to see them cut, weighed, and counted. I have been asked if the pound of sets were cut from 1 lb. of tubers, or from several pounds, my answer is from 1 lb. of Potatoes. My reason for having so many witnesses (see p. 373) to the cutting of them was, that there should not be even a semblance of unfair dealing. The number of sets obtained in this way was, from 1 lb. of Snowflake, 169, from the same weight of Eureka 252. This may be considered sharp work, but it was in no way an infringement of Messrs. Hooper's conditions, one of them being "the Potatoes may be cut into sets." Of course these sets were ridiculously small, many of them not being so large as Horsebeans. On the following day the Potato sets were again weighed, and counted at the time of planting. They were planted 2 feet asunder down the centre of the ridges. In about a fortnight the Snowflakes began to show themselves above ground, followed in a few days by the Eurekas, but they were so remarkably weak at first that I was ashamed of them. Early in May I gave each plant a light dressing of guano, stirring the soil about them, and giving a good watering at the same time. This was repeated twice, at intervals of about ten days, while the weather remained hot and dry. They were earthed up twice, the last time leaving the ridge as sharp at the top as is done with Celery. So surprisingly did the haulms extend, that, by the middle of July they met across the Celery trenches, a distance of 4 feet, and I saw that if left alone the Celery (which had been planted in June) would soon be killed altogether. The Celery being a more important crop to me than the Potatoes, I was compelled to keep the latter within bounds by driving stakes on each side of the rows, and passing cords from one stake to another. By so doing I managed to confine the Potatoes to a yard in width. The severe thunderstorms and heavy rains to which we were subjected during the greater part of July and August, made sad havoc among the earlier Potatoes in many districts and, fearing that these would become badly affected, I had them lifted before they were fully ripe. Snowflake, being the earlier variety of the two, was lifted on August 13th, exactly four months from date of planting, the produce being 638 lbs. from 161 roots, eight of the sets having failed to grow. Eureka was lifted a week later, producing 1,082½ lbs. from 235 roots. Both varieties were lifted and weighed in the presence of a number of tenants on my employer's estate, who, being themselves great Potato growers, had taken an interest in this experiment. At the time of lifting there were but few indications of disease in the tubers, but in less than a month the greater part of them had become diseased. Out of 300 tubers of Eureka, which weighed 369 lbs, only about sixty remained sound. From some of the outside roots of Eureka, the produce was between 7 and 8 lbs., while the average was only a little over 4½ lbs. per root. From this I imagine that, had I given them more space, I should have had even greater results, and I consider it quite possible, with greater choice of seed and more room, to grow 1,300 lbs. of Eureka from 1 lb. of seed. Of the good or bad qualities of Potatoes grown in this way, I cannot speak, quantity alone having been aimed at. I may just add that the Celery was a little drawn, but soon recovered after the removal of the Potatoes. Fredk. Ford.

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* T. J. Smith & Son & Downes, London.

Capesthorne, Chelford, Crewe.

FORCING LETTUCES IN POTS.

This, although it is not generally done, is neither troublesome nor difficult, nor does it involve much extra expense, and wherever a large supply of salading is required, the results obtained in this way are so certain, that the method should be adopted more often than it is. The plants will do very well in an orchard-house, but of course will come on faster in a warm house, such as a Vinery or Peach-house. Although they will stand a strong heat, from 50° to 60° suits them best, and, in fact, will give range enough to show how accommodating they are. When grown rapidly in a light house, they are more tender and more delicate in flavour than when exposed to all the vicissitudes of temperature, and other unfavourable circumstances, in the open air, no matter how sheltered and protected they may be. There is no fear of snails or slugs eating their hearts, and neither is it necessary to smother them with lime or soot, in order to keep these depredators at a distance. A 48-sized pot will hold a good large Lettuce, and a couple of hundred, more or less, will not occupy much room. This number will furnish a good many salads. Tying up for blanching, as they become large enough, and supplying them with water, are the chief operations required in connection with the undertaking. It is always advisable to grow two or three kinds. The Tom Thumb is a beautiful small Cabbage, and will come in before any other kind. The White Paris Cos or any good variety of it will come on in succession, and the Dutch Cos may always be relied on to do well under any circumstances, both indoors and outside. It will probably take longer to blanch, but will keep longer in that condition afterwards. E. Hobday.

Ramsey Abbey.

Failure of Winter Spinach.—What, can anyone tell me, is the cause of my Spinach failing? The seed was sown on the 11th of August after a crop of Peas; it germinated well; the plants grew most luxuriantly, and I felt sure that I should have plenty of Spinach for the winter. About six weeks ago, however, I noticed a few plants turning yellow; thinking they were attacked at the root by some grub or other pest, I examined them, but could detect none. The roots looked healthy. Nevertheless, the evil kept increasing, and already more than half the crop is destroyed. Can the excessive rainfall which we had in the autumn have anything to do with the matter? Since the 1st of September we have registered 13 inches of rain.—J. M., *Winslow.*

Canned and Greengage Tomatoes.—I have tried some of the canned Tomatoes of which so good an account is given (see page 489). We made them into soup, and I never tasted any Tomato soup which had a finer flavour. It was praised by all who partook of it. Of course the fruit would have been just as good cooked in any other way. We afterwards bought a small tin of French Tomato paste (when opened it looked as thick as a *purée*) but it appeared to have been either too much boiled, or mixed with something else which rather spoiled it. It seems that people have a prejudice against the Greengage Tomato, because it is not red. We often hear it said that a good horse is "never a bad colour," and this is so in the case of Tomatoes. We grow the Greengage and nothing can be finer than its flavour. We are now ripening a quantity of this variety in the kitchen, as they were too late to ripen well in the greenhouse. They are carefully wiped when brought in, laid singly on dishes, and turned every day. They have now been in the house about a week and some of them are perfectly ripe, their flavour being nearly as fine as if they had not been artifically matured. The Greengage makes excellent soup, but the stock which forms the basis, must be very pale and clear.— N.

HOLLIES.

The Holly is held in such high estimation for decorative purposes at Christmas time that one would suppose its cultivation would be made a speciality, for not only do its leaves, berries, and branches occupy a foremost place in such decorations, but no plant or shrub excels it in rendering our gardens attractive when flowers are scarce. Many of our Hollies are, at present, models of beauty—pyramids so densely clothed with variously coloured leaves and berries that the load seems more than they can bear. Yet beautiful as Hollies are, they are often sadly disfigured by allowing large, gross-feeding trees to overgrow them, and by the ruthless manner in which their branches are lopped off for Christmas decorations. Cutting back the straggling growths, if done with care, tends, however, to thicken the trees as they break freely from the young wood. Where the soil consists of good loam, and is deeply trenched, Hollies will grow luxuriantly, and, as single specimens on Grass in the mixed shrubbery border, or in the form of clumps of several varieties, form splendid objects, especially if golden and silver-leaved varieties are properly intermixed with the plain-leaved scarlet or golden-berried sorts. If the plants are well prepared for removal by frequent transplanting, they may be moved at almost any season. I have seen large Hollies transplanted without injury, but I am no advocate for removing old trees of any kind. Care should be taken to protect young Hollies, in severe weather, from hares and rabbits, which are fond of them; if much barked, they seldom recover. Birds, too, attack the berries of the common kind in preference even to those of the variegated varieties. James Groom.

Henham.

An Alpine Forest.—There is a wondrous charm about these illimitable forests of Pine which for miles and miles clothe the huge buttresses of the Alps. The charm is intensified at early morning, when a delicious fragrance steals up from innumerable wild flowers in the various openings among the trees, and from the green Moss which clothes with such velvet softness the rocks lying half hidden in the rich verdure. Variegated Lichens enrich with the colours of the kaleidoscope these rocks and river-stumps; wild Strawberries peep out with their pretty pink eyes from the shady Grass, and, if we chance to look upward from the wealth of beauty below through the rifts in the dark foliage overhead, some pinnacle of snow is seen soaring into the deep blue sky, as soft, and white, and still, as the wing of a sleeping swan.

NOTES AND QUESTIONS—VARIOUS.

Winter Bouquets.—I find nothing so useful for bouquets in winter as Mignonette grown in a cold house. It keeps a long time fresh, some sprays of it cut here for experiment on the 26th of November being now (December 9th) just as good as the day on which they were cut. They were placed in water in a temperate house, where they grew from 1 to 1½ inches.—R. Gilbert.

Phalænopsis Lowii.—A vigorous specimen of this pretty little species is now in flower in the Orchid-house at Kew. Its sepals and petals are of a bluish-lilac, and the lip rich violet-purple. The Kew variety is a richly-coloured one; and associated, as it is, with the white-flowered P. grandiflora, it has a peculiarly beautiful appearance.—B.

Sutton's Matchless Brussels Sprout.—This is a good true stock, and there is no question that it is far more profitable, either in the case of this or any other vegetable, to grow a good selection, even at an increased cost for seed, than to submit to the loss and annoyance always resulting from using seeds grown in a hap-hazard, careless manner.—E. Hobday, *Ramsey Abbey.*

Washed Vegetables.—Our cook insists that all vegetables must be washed before they are sent from the garden, and adds that such is the common practice. I confess I have never seen them washed, and I consider the practice injurious to the quality of the vegetable—young Potatoes for instance. Will some of your readers kindly favour me with their opinion on the subject?—R. R.

Crassula rubicunda.—This useful winter-blooming Crassula is now in flower in the succulent-house at Kew. In habit, it closely resembles Rochea perfoliata; but it grows only 10 or 12 inches in height, each stem being terminated by a dense corymbose head of crimson flowers, among which the yellow anthers are conspicuous, brightening up the inflorescence considerably.—B.

Dyeing the Plumes of Pampas Grass.—Among the many things to be seen at Arundel, Mr. Wilson pointed out to me spikes of Pampas Grass dyed all the colours of the rainbow by means of Judson's dyes. These form useful and striking ornaments on the dinner table, particularly when flowers are scarce, and the table is expected to reflect a perpetual spring. Small and common Grass may also be used in this way with advantage.—R. Gilbert, *Burghley.*

Road and Street Sweepings.—Road sweepings, and especially road trimmings, if thrown into a heap for a few months, form a capital receptacle for sewage matter; and than this no better use can be found for them. Street sweepings, on the contrary, contain in themselves a large proportion of manure; they are less sharp and gritty than road scrapings, but are not less suitable for stiff soils, and especially for flower-roots; but one of their most acceptable uses is, when applied as a manure to Potatoes. That most successful Potato grower, Mr. M'Kinlay, obtained his cleanest and handsomest samples from soil to which a good dressing of street sweepings had been applied. Unfortunately, this excellent manure is not easily obtainable in small quantities or at distances remote from towns.—A. D.

No. 214.] SATURDAY, DEC. 25, 1875. [Vol. VIII.

> "This is an art
> Which does mend nature: change it rather: but
> THE ART ITSELF IS NATURE."—*Shakespeare.*

NOTICE.

Having issued a Plate with each of the last two numbers, with a view of partially illustrating our plans for the coming year, the paper appears this week for the last time in its old form, with the addition of the wrapper only. Every week, from the beginning of the New Year, THE GARDEN *will contain a Coloured Plate of some new or rare flower or fruit, likely to prove of permanent value to our gardens. While making this addition, all the existing characteristics of* THE GARDEN *will remain as before, or be improved. The Series of Coloured Plates will enable us, in addition to the best class of woodcuts, to include in the Paper every kind of interest sought for in horticultural literature. Subjects for illustration will be most carefully selected, the best fruits, as well as the choicest flowers, being illustrated, while coloured landscape sketches will also be given where they appear more desirable than wood engravings.*

PUBLISHER'S NOTICE.

From Jan. 1, 1876, *the price of* THE GARDEN *will be* 6*d. weekly (through all booksellers and newsvendors, and at the railway bookstalls); the Monthly parts,* 2*s.* 6*d., and the half yearly volumes,* 18*s. Where newsagents or booksellers deliver the paper regularly, flat or unfolded copies may be procured, and readers are advised to obtain the work in that way, so as to prevent injury to the Coloured Plates from folding, and in their way through the post. As, however, many readers in the country cannot get the paper in this manner, it will also be posted regularly, as usual, from the office at the following rates, including postage:—For a year,* 28*s.; for a half year,* 14*s.; for a quarter,* 7*s. Desiring, however, that subscriptions should mostly date from the beginning of the year, and wishing thereby to simplify our accounts, we make a reduction in the case of yearly subsriptions, dating from January* 1*st,* 1876, *which, if paid in advance, will be* 26*s., instead of* 28*s.*

LARGE-FLOWERED CHRISTMAS ROSE.

By Miss HOPE, Wardie Lodge, Edinburgh.

I ALWAYS fancy that Helleborus niger major, maximus, and grandiflorus, are provisional names for this grand Christmas Rose; but, as yet, it has no other. With reference to this valuable winter-flowering plant, your correspondent, "Salmoniceps" (see p. 482), writes that "it is very easily increased." As such a remark may lead to this plant becoming still scarcer, I will here note down some practical hints on its propagation, which, from this particular Hellebore having been for years a speciality here, I am enabled to give. It seems to me that a plant that will not seed, nor strike by cuttings, nor divide like Dactylis, nor chop up like Verbena venosa, can never be, in the popular sense, "easily increased." It is about six years since Mr. M'Nab told me how to propagate this particular Hellebore from the root; and, in conversation with Mr. P. Robertson, Trinity Nursery, he suggested as a suitable time when the leaves were at their ripest, that being the rule in collecting the roots of the Hellebore of commerce. Upon these instructions I worked, having a large stock of plants at my command; and I do not deny that I was most successful from the first, and have increased the plants by the hundred. Notwithstanding this, it will always be a slow plant to propagate. The clumps operated on must be well-established plants, that have formed root-stocks large enough to be worth cutting up; and the pieces of roots must lie dormant, so to speak, for the best part of a year, and are safer left alone in the root-bed for two years. They should then be transplanted into their permanent bed; and, if undisturbed, will be good flowering plants in another couple of years. Four years, in short, are required to bring a Christmas Rose to perfection. By July, this Hellebore is in its strongest vigour. During that month the operation of lifting the clumps—only two or three at a time—is commenced, these clumps being at once wheeled to a cool shed. In breaking up the plants in the ordinary way, the principal point is, to avoid as much as possible the loss of leaves; then cut off as much of the thick root-stock as can with safety be spared, leaving the true roots, attached to the neck of the plant, intact, and at once re-plant the divided clumps in their permanent quarters, watering carefully, and, if necessary, shading with a branch until evening, the object being to prevent flagging, to keep up the appearance of the bed or border during the summer, when this Hellebore is valuable for its foliage alone, and to ensure the flowering of the clumps. The growing plants safe, we commence cutting up the root-stocks, and here I may confess to the sad waste of plants that yearly took place through my ignorance, for these useless old roots were thrown away after the manner adopted with the hard pieces of Primulas. (Can anything be done with these, by-the-bye?) Sitting down with a sharp thin strong blade, I cut up the root-stock into pieces from 1 to 2 inches in length, according to the appearance of the buds, or swellings; some of these may be blind, so close attention must be paid to the work, and at times you will have to sacrifice an eye (so to speak) in making two plants of a piece of root, or, what is wiser for the amateur, be satisfied with one plant and keep all the eyes. But there is a dangerous fascination in seeing how many safe cuts you can make in a lump of root, and one turns it round and round before deciding on the best angle to take to make most and lose least. In these doubtful cases, however, I now resist the temptation, and leave the piece whole, being sure that a finer plant will thus be all the more quickly secured. I am particular in planting each day's roots, that have been cut up, the same day, leaving nothing for to-morrow, and I therefore only lift what can be safely disposed of that day. Plenty of sand is needed in the shallow bed of light soil and a gentle watering with a fine rosed pot when the lines are filled up and the bed full, completes the business. A label numbered and dated, and the number of pieces of root noted down, is set in each bed. Possibly there will not be in the whole bed one leaf visible above, or a single true root below; but, by the following April, if genial weather prevails, and you have good fortune, you will see the lines cracking, and a loop of young leaf coming through, here and there, day by day, and then it is well to lay lightly a few Thorn branches over the bed as a protection against cats and birds. I should much like to trace the origin of this Hellebore, but no one to whom I have applied can give me any information. Some wildly assert that it is a seedling from H. niger, but all agree that the north of Scotland is its home. My own acquaintance with it dates back to November, 1863. Hearing often of a wonderful Christmas Rose at Newleston, Mr. Hogg's property some 10 miles from Edinburgh, I drove over to see it, and was kindly given a good plant, which had been obtained from Aberdeen, and from that time I have never relaxed my efforts to increase our stock—first, by the usual slow process of division, and by begging and buying bits wherever I found a plant; then by sending a trusty man to the north, who secured some dozens of old clumps; and, lastly, when enlightened by Mr. M'Nab, by going myself to Aberdeen, and, with the aid of a lorry from the railway station, and sundry casks and sacks from the docks in which to pack my booty, I reached home with a really sufficient stock. Those palmy days are past. The London nurseries are now far better stocked with it than the Aberdeen ones, and their owners know how to secure what is so well worth looking after. One ought to have four lots, and in rotation yearly cut up one set of plants. It is of no use tormenting and giving a check to younger plants, and if left too long, say six or seven years, we find there are many dead and blind buds; nor is it the most imposing clump of leaves that has the largest crop of roots, in fact, until lifted one cannot be certain of the result. As to the seeding of H. niger and its varieties, I am curious to learn. Mr. Ellacombe is my only authority, he wrote to me, "I certainly include H. niger among the Hellebores that sow themselves. I have had seedlings at different times; but they are not common." Bitton is quite an exceptional place, and I hope H. niger major will seed there also. Any to whom I put the question first affirm that the common Christmas Rose does ripen seed, and then when they come to think, and wish to prove the fact, they have to back out of the assertion; or I am put off with the well-known examples of H. fœtidus and H. orientalis, which yearly have a bed of seedlings around the parent plants. To be sure, fœtidus is not esteemed for cut flowers, and orientalis does not last in water, unless the flowers are cut short, with their own inch or two of foot-stalk, so both these sorts are left alone. I have repeatedly tried to seed H. niger major, in both open and severe winters, in a south border of light, and shady beds of, heavy soil. Fine clumps bearing from three to six dozen stalks of flowers have been selected in such seasons and situations. One has been covered close with a cloche, another has been properly aired under a hand-glass, a third protected with a few branches; but the result has been that although the pods seem to set and swell, they come to nothing; I have tried leaving the whole crop of flowers, and cutting off all except five or six of the best blooms, and have taken those that seemed promising into the house. I have saved, for experiment, the first and the last flowers, that open in October and March. In short, I do not believe it will seed, here at least (is it a hybrid?), and I have quite given up the fruitless attempt. Perhaps at Bitton it may succeed, or with "Salmoniceps," who has a fine climate, and I hope, before increasing his plant by the root, he will try to get it to seed. At page 476 your correspondent "Oxon." suggests a very dangerous proceeding with Hellebores. "They force well," he says. The fact is, they do not require forcing; merely lifting and putting them into the greenhouse brings them on quickly. But they dislike it, and in most places do not thrive after such treatment. I know several gardens where Christmas Roses were potted, and brought into the house every winter, and the consequence was that there was not a Hellebore plant worth looking at about the place for years after. I may as well own we have been guilty of this unwise practice, and in one day lost and hurt many a good clump, although we did the plant all justice afterwards, and I have no doubt "Oxon." succeeds better than we did; still, he will find that Hellebores resent being meddled with in this way. It is a melancholy sight to a true lover of plants to go in spring to back premises and out-of-the-way corners in most establishments and see the waste and destruction of hard-wooded, soft, or bulbous plants that takes place after the forcing season. They are no longer useful or ornamental, and are stowed anywhere out of sight until there is time to attend to them; meanwhile their pots are required for spring shiftings, and they are ruthlessly turned out with their roots roasting in the sun, or exposed to the east winds, the end being that, when they can be attended to, a large proportion is wheeled off to the rubbish heap. Of course this need not and ought not to be the practice; nevertheless it is what happens yearly, and is especially vexatious in the case of Hellebores and Hepaticas, for no two plants suffer more. Hardy plants, I think, should be enjoyed in their legitimate place and at their natural season. It may, indeed, be asked whether the practice of forcing plants is a healthy instructive one? I deem it is not, and, for amateurs, not one to be fostered. It may be very right in properly organised large establishments, but there you will find a hothouse full of Eucharis amazonica, and a cool conservatory for white Camellias—Christmas Roses, which are not required, are therefore left safe in the shrubbery borders. I always wish that those who will have birds in cages and chains would keep to canaries and parrots, and leave our native larks and bullfinches alone; the same principle applies to plants—Keep to bulbs, that have been grown for generations for forcing purposes, and endless exotics, and leave our hardy plants in the garden. That is the place to appreciate Christmas Roses, and it is easy to have cloches or some sort of protection to save the flowers if the winter is severe, and a very gentle exercise for even a frail amateur would be to lift such protections off and on, or if this is too fatiguing better have the flowers cut and keep them in water, where the buds will expand and the flowers last for weeks. In water the fine stalks of H. niger major are very beautiful, with the red spots and markings brightened and magnified in the clear glasses. All they require is a slice clean cut off when the extremity of the stalk gets discoloured or splits up. Let me conclude with a hint or two for amateurs who exchange plants and may have H. niger major to dispose of. Always give away healthy young plants that are sure to flower, and may divide in a few months into two or even three plants, but keep every inch of root-stock for yourself, and all weak little plants that would merely go into the dozen or hundred. You will thus gain much knowledge about the plant so treated. One never can know too much about a plant; one never can know all there is to be learnt. De Candolle's advice, in a letter to Mrs. Somerville, often comes to my remembrance, when I am thoroughly studying the habits of some plant—"I advise you, above all, to see the plants at all their ages, to follow their growth, to describe them in detail; in one word, to live with them more than with books."

ZONAL PELARGONIUMS IN WINTER.

I had no intention of depreciating the merits of the Zonal Pelargonium as a winter flowering plant, when I spoke (see p. 484) of the three last months of the year being too damp for it in the conservatory. On the contrary, in making the passing remark, which I did, about its susceptibility to damp, I only recorded my own experience of it here as a conservatory plant in winter. I am not unacquainted with the value of P. zonale for winter flowering, and I quite agree with Dr. Denny, that if it is kept in a "comfortable, dry, warm and well ventilated house," it will be all that he describes; and I am also aware that it must be properly grown for winter blooming, exhausted plants being useless at that season. Dr. Denny's house and Mr. Pearson's houses are altogether different from the generality of conservatories. During the last months of the year, in a large house, it is an easy matter to have a blaze of these Pelargoniums in winter, and to call that house a conservatory, for after all the whole race of Pelargoniums are of the very easiest culture, but moisture in winter they will not stand, and from this they are sure to suffer at that season in mixed conservatories. The one under my own charge, may be described as rather large, with a lofty ornamental iron roof, draped with a variety of climbing plants and resting on a series of decorative pillars and arches of Caen stone, the floor being of tesselated pavement. It is filled with large Camellias and Orange trees in tubs and pots, and very large tender Rhododendrons in tubs, besides Heaths, Cytisuses, and a general collection of plants; in addition to these, there is a recess or bank of Ferns planted out. The greater part of the more valuable plants succeed best with the least possible application of fire heat; indeed, moisture within certain limits is necessary for their culture, and I think this is a fair representation of mixed conservatories throughout the country in winter. I find, after many years' experience, that the Zonal Pelargonium, when mixed with the general bulk of such plants, and subjected to the atmospheric conditions requisite for other plants, very quickly loses its beauty, both leaves and flowers gradually showing symptoms of declining health. I, nevertheless, have a few during the time when they look best, but the place is not suited to them, and plants better adapted for the purpose soon occupy their room—from this point of view I wrote the remarks to which Dr. Denny refers. I must say, however, that with a kind of forcing treatment the Zonal Pelargonium is one of the most useful decorative plants for winter, and its beauty becomes intensified as that season advances. I annually prepare a quantity of it specially for winter decoration and cutting, something in the way in which Dr. Denny suggests. For this purpose, in February or March a few hundred cuttings are put into 4-inch pots—four cuttings to the pot to save room—these are struck on a shelf close to the glass in a warm pit, and when rooted are pinched and shifted, until finally they are moved for the summer into cold pits and into 7-inch pots, where they are well supplied with liquid manure. Pinching, tying, and the removal of all flowers up to October are carefully attended to, and the lights of the pit are sometimes entirely off, sometimes on, and sometimes shaded, according to the weather. By October the pit becomes too damp for them, and they are then removed to a long, narrow, span-roofed house with a path down the middle. Here they are arranged close to the glass on the sunny side. On the other side are Cyclamens and Chinese Primulas, and on the same side as the Pelargoniums are the hot-water pipes. Here they have, as Dr. Denny remarks, a "comfortable, dry, warm, well-ventilated position;" and the result, we need not be told, is a very brilliant display of flowers, from which it is not difficult to obtain fine specimens for vases, for house decoration, or for the dinner-table. But I can assure Dr. Denny that I should only move these plants to the mixed conservatory under protest, older plants of the previous year being, in my opinion, quite good enough for such quarters. When the time comes for frequent table and room decoration, the Zonal Pelargoniums have to sustain their part; and well they do so against other flowers, with their many shades of colour, from pure white to crimson, or, sometimes, nearly blue or lake. On the white table cloth, with a background of their own foliage, and of Ferns, Coleuses, and other plants, their appearance is most brilliant. Table decorations can be furnished in endless variety, night after night, when such flowers as double Primulas, Bougainvillias, Bouvardias, pips of Justicia carnea, Scutellaria, or others of the same nature, are plentiful. But when a clearance is made of the first flush of flowers it is slow work for the Zonal Pelargonium, in December, to reproduce a succession; still we expect these flowers to carry us over the new year, when the bulk of them are thrown away to make room for something else, only a few of the best plants being retained for culture afterwards. I do not claim to be acquainted with the very best of the new varieties; a number of what might be styled old ones have hitherto suited my purpose, but I would gladly add some of the former to the number if Mr. Denny will kindly give a list in The Garden of the choicest of his favourites. W. D. C.

NELUMBIUM SPECIOSUM HARDY AT PARIS.

When recently visiting the private grounds of the Jardin des Plantes, at Paris, I noticed a small circular tank about 4 or 5 feet in depth, with about 2 feet depth of water in it, from which protruded certain withered leaves. These seemed to me to be those of a Nelumbium, and on enquiring concerning them, I was informed by Professor Decaisne that they were the beautiful N. speciosum, or Sacred Bean of Egypt, usually only to be seen in large establishments where heated tanks are available for the cultivation of stove aquatics. M. Decaisne informed me that these plants were never protected, even during the severest winters, and that the water in the tank often froze to the thickness of more than a foot, but that the tubers of the plants being then completely at rest, they were in no wise injured by the great cold of the water surrounding them, if the frost did not actually reach them. Towards the middle of the month of May when the plants begin to grow again, glazed sashes are placed over the tank to attract the rays of the sun thereto and warm the water during the day. These are kept on for two or three months, during which time the plants mature their beautiful large deep rose-coloured blossoms, which expand after the removal of the sashes towards the middle of August, and continue during nearly the whole of September. The plants have not as yet ripened any of their curious seeds, but this may perhaps be owing only to no effort having been made by those in charge of them to artificially fertilise the blossoms, an attention which many such plants require when growing under different conditions from what they are by Nature accustomed to. As it is very difficult to obtain plants or tubers of these curious and beautiful plants, except from botanical gardens, where the authorities usually do not like to part with them, it may be interesting to some of your readers who read this notice, and that concerning Nelumbium luteum, which recently appeared in your paper from Mr. Sturtevant, to know that by applying to M. Tourrès, Horticulturist, Macheteaux, Près Tonneins, Lot et Garonne, they can obtain all the Nelumbiums as well as nearly all the known varieties of Nymphæa or Water Lily, and also some new and beautiful hybrids of his own raising, as he has for many years made these plants a special study. W. E. G.

Deranged Thermometers.—At page 276 Messrs. Negretti and Zambra give instructions how to put to rights thermometers that are out of order. I have a few self-registering ones, one side giving the highest and the other the lowest temperature; some of these at the present time are 8° higher on one side than on the other, and the index, which ought only to come down by the magnet, now follows the fluid. The directions given by Messrs. Negretti and Zambra have no effect whatsoever upon them, and I should be obliged if any of your correspondents would give me a hint how to bring them into working order again.—Enquirer.

NOTES OF THE WEEK.

—— Among the prettiest things we have ever seen in the London flower market are small pots containing growing plants of forced Lilies of the Valley, and a few fine crimson Tulips growing out of a healthy little tuft of the common Maiden-hair Fern. These were sent to the market by Mr. Herbst, of Richmond.

—— Enormous quantities of the early Tulip Duc van Thol (T. suaveolens) are grown by the London flower-growers, for Covent Garden, Mr. Poulton having 50,000 pots for the present season. For the last week or two it has been the brighest flower in the market.

—— English-grown Pine-apples are selling worse than ever this winter, in consequence of the abundance of superb fruit from St. Michaels. Of home-grown kinds, the only fruit that has of late found any favour in the London market is the Black Jamaica.

—— Mr. George Berry, forester at Longleat, will write seasonable instructions on trees and forestry in The Garden for the years 1876 and 1877. We propose to change the writers in the several departments every two years or so henceforward, always endeavouring to secure the ablest men, and those with the most extensive practice in the departments on which they write.

—— We seldon notice trade lists, but make an exception in favour of the very large, accurate, and well-arranged catalogue of fruits, recently issued by MM. Simon Louis, Frères, of Metz, which is really valuable as a work of reference. It is compiled accurately and conscientiously, and contains an extensive and most useful list of synonyms.

—— We have to thank many readers for notes of approval and encouragement for the future which, however, we naturally refrain from publishing. There are many difficulties in the way of producing coloured plates of a high character, and in sufficient numbers to be used with the regular issue of a weekly periodical, and the plates may not at first give satisfaction to everybody. But our readers may be assured that no effort will be spared to make The Garden plates as good as the knowledge and skill of the time will permit of. We may add, that one part of our plan is to produce plates, as far as possible, true to Nature in all respects, and not, as is too frequently done, to misrepresent, not only colour and form, but even size.

—— Among the generally good supplies in Covent Garden, may be noticed quantities of fruit of very inferior quality, and which is sold at an absurdly low price. This frequently comes from private growers or amateurs, who, having more than they require, think it well to send the surplus to Covent Garden, forgetting that nowhere is the standard of quality higher than it is there. The result is, that the fruit scarcely pays for its carriage, and wholly disappoints both grower and seller. In the great Christmas market (last Thursday) there were quantities of home-grown fruit, which were almost as fit to send to the rubbish-heap as to a market. The sending of such can only benefit the railway companies.

—— Mr. H. Harris, of Nazeby Woollys, Rugby, sends us a collection of double Primroses of different colours, varying from pure white to deep rosy-crimson, and beautifully speckled. Among named kinds, Bridesmaid is one of the best, its colour being white suffused with delicate rose; Excelsior is of a light rosy colour speckled with vermilion; Champion, deep rosy-crimson, while some sent without names are equally good, their colours and markings being very delicate. Some of these flowers measured fully 1½ inches in diameter, and the plants, if dwarf and of good habit, will be highly ornamental. Mr. Harris thus writes concerning their production:—"For the last five years I have been crossing and re-crossing with great care the best single reds and whites. Two years ago I had one double, last year half-a-dozen, and this year seed sown last May has produced over thirty per cent. like the flowers enclosed. I exhibited a dozen plants at Northampton on the 16th and 17th inst., and was awarded an extra special first prize for them."

—— Professor Kerner has published an essay on the "Hybrid Primulaceæ of the Alps." Of these he enumerates no fewer than twenty-five belonging to the genus Primula, four to Androsace, and two to Soldanella; some of which have been treated as species, as that between P. subacaulis and officinalis under the name of P brevistyla.

—— Eucalyptus globulus has received some attention in India, and it is proved that, although it grows quickly and with vigour on the Neilgherries and Khasia hills at 5,000 to 8,000 feet above the sea, it cannot be induced to live even for a year or two in the hot plains of India.

THE FRUIT GARDEN.

Tom Put Apple.—This is the only European Apple we have seen for some time which equals in brilliancy of colour the noble Apples sent us from America, such as King of Tomkins County and Canada Red. It is a very handsome Apple, and has also a flavour which enables it to rank as a choice dessert fruit; it is full of a pleasant juice, and has a crisp tender flesh. Mr. J. Scott, of the Merriott Nurseries, sent us the specimens, which we propose to figure for The Garden, as it is a fruit which seems but little known.

White Lady Downes Grape.—Ever since this Grape has been public property its qualities, as a rule, have been undervalued. For some years my own experience was unfavourable, which almost led to its removal. On second thoughts I spared it for another year's trial, and I am now thankful I did so, as it has turned out, after all my misgivings, to be an excellent late Grape. I will not venture to say that it is in any point superior to its black namesake, only the white colour is useful for the dessert during midwinter and spring. It may be said that the Muscat of Alexandria is far better than Lady Downes, and so it is; but it is more difficult to manage. Both varieties of the Lady Downes demand nothing more than a cool Vinery. The Waltham Cross, a new white Grape, has lately made its appearance. It is large in the bunch and berry, and of excellent flavour. I feel certain it will eventually supersede our present race of white late Grapes.—Alexander Cramb, *Tortworth.*

Grapes Colouring Badly.—I have Vines in a conservatory, but their roots are in the soil outside. They consist of Black Hamburgh, Black Prince, and others. The bed in which they are planted is between the conservatory and carriage drive. The fruit, especially of the Black Hamburgh, has shown, for the last three years, that something was wrong, each successive year a large number of the berries having coloured red, and remained quite sour. Damp was suspected, but on examination of the soil it was found that it was all right in that respect, for, although there were no carefully constructed drainage, the soil was open in its character and near the edge of an incline of the lawn, but, apparently, some of the roots had got into bad soil; these lateral roots have been put right by widening the bed with good material, but my gardener was afraid to disturb the tap root, and he is not certain how it has fared. 1. Would you recommend the tap root to be overhauled? 2. Is there any advantage in pounding up oyster-shells in the compost, or would it answer equally well to leave them whole? 3. Are scallop-shells also good for the purpose?—K. K., *Valencia, Ireland.*

Newspapers for Fruit Protection.—For small quantities of fruit I also have found that there is nothing better than newspapers to keep off frosts, provided they are folded so that there are three or four layers of paper over the fruit. Of course it is not to be expected that a very severe frost that will penetrate through 6 inches of dry litter will be kept out, but four thicknesses of paper will keep off 8° or 9°. This I proved practically last winter. The temperature of a frame covered with four thicknesses of the "Times" and a sheet of oiled calico, only fell to 34° Fah.; while one alongside it, without protection, went down to 21°. Both frames were empty, set on a concrete bottom, and made as nearly as possible air-tight at the bottom, so that it may be said they were quite alike as to general conditions. I am using paper under tarpaulin on my frames now, and I shall be happy to record my experience in spring. Of course the paper must be dry.—W. J. May.

Fruit Trees for North Walls.—I have often been asked (says Mr. Saul, in the "Florist") what kind of fruit trees I would recommend for north walls. Many have an idea that few kinds will succeed on such an aspect, owing to the want of sunshine and exposure to cold. This is, however, a mistaken impression, inasmuch as many of the best kinds of Plums, Pears, and Cherries succeed well and bear abundant crops on north walls. Unfortunately, gardens do not always furnish the best examples of what can be grown on north walls, from the fact that against one of such walls are frequently built the fruit-room, Mushroom-house, potting-sheds, and similar structures. Morello Cherries, a few Currants, and a Plum tree or two, are generally what are grown on north walls. It is an advantage to have a north wall for Plums and Cherries, as they ripen later than on other aspects, and hang a considerable time, thus continuing the season for a much longer period than otherwise would be the case. We have the following Plums on north walls here:—Orleans, Greengage, Impératrice, Jefferson, Kirk's, Victoria, Magnum Bonum, Washington, and Reine Claude de Bavay (the two last late Plums), all of which bear well—generally better than those on other aspects, as, coming later into flower, they often escape spring frosts, while the others are cut off. Our finest Greengages are from trees on north walls, and we have them a considerable time after those on south and other aspects are past. On a north wall here there is a Jefferson Plum tree, and, on a south wall, two fine healthy trees of the same variety; the former generally bears as many fruit as both the other trees. There are also several kinds of Cherries on the north wall which do well. They are easily protected when ripe, and keep late into the season. We have no Pear trees on the north walls, as we have many on the other walls, besides some standards, and a great number of pyramid trees, which yield excellent fruit; but many kinds of Pears do well on north walls. I would not, however, advise planting Pears on a north wall; but, instead, would strongly recommend the better kinds of Plums.

Figs Failing to Ripen.—As a rule, Figs do not succeed well in the north-western neighbourhood of London, as the soil is only clay, with perhaps 9 inches of good soil on the top. It may, therefore, be interesting to many of your readers, if I inform them how I treated several of these trees successfully. I first took out the clay soil to a depth of 5 feet, and then put in 2 feet of mortar rubbish, first, however, leading a drain to the bottom of the hole, to carry off superfluous water. The hole was then filled with some loam, and a little mortar rubbish intermingled with it, in the proportion of about one barrowful of rubbish to a cubic yard of loam; and, after the soil had settled, the plants were put in. By careful training and summer pruning, the trees, which were old ones, bore very well the second year; and have since ripened good crops. I may add, perhaps, that the trees are in a close warm corner, facing due south, and that mats are thrown over them during winter.—W. J. May.

Misnamed Pears.—After close observation, extending over a year, of the variety called Brockworth Park, and of its young rose-tinted foliaceous shoots, its "chapped" epidermis, and its late flowering season, I have been able to recognise our old friend Bonne D'Ezée, found in Touraine in 1788. Mr. Scott, of Merriott, appears to have discovered the error at the same time as myself. Another case is that of the Beurré Père, obtained by M. Philippe Père at Ath, in Belgium, which, according to the "Pomone Tournaisienne," is no other than the Beurré Bretonneau, raised, according to Belgian and French authors, by Major Esperen. The identity of these two kinds has been established beyond a doubt, and it is to be regretted that cases of the same kind are so frequent, for, with ordinary care and circumspection on the part of growers, they might be avoided, and the public would cease to have any cause to complain that old and well-known varieties were palmed off on them under new and high-sounding names.—Charles Baltet, *Troyes.*

Ways of Pruning.—There are four kinds of pruning; first, with a nip of the thumb nail, and, if this be always done in time, no other would be needed. Secondly, with the pocket knife, which must be used on shoots of one year's growth, while yet small, when they appear superfluous. Thirdly, the removal of small limbs an inch in diameter, the wounds soon healing over and requiring no special protection. And fourthly—a system not to be resorted to except when trees have been badly neglected—sawing off large limbs, the wounds of which need the protection of paint, grafting wax, or other covering. The first is to be preferred, and can well be used if young trees are often examined; but, in the case of its omission, the second is nearly as good; the third will answer; and the fourth is a system only to be adopted in cases of necessity.—"Cultivator."

The Stanwick Nectarine.—This Nectarine was raised at Stanwick Park, one of the seats of the Duke of Northumberland, from stones given to Lord Prudhoe by Mr. Barker, Her Majesty's Vice-Consul at Aleppo, and who afterwards resided at Suædia, in Syria. The seed was sown in March, 1843, and the buds were inserted the following autumn on a Bellegarde Peach, and the first fruit was produced in 1846. Lord Prudhoe, who had become Duke of Northumberland, placed the Stanwick Nectarine in the hands of Mr. Rivers, of Sawbridgeworth, for propagation, and on the 15th of May, 1850, the stock, consisting of twenty-four plants, was sold by auction, and realised £164 17s., which his Grace presented to the funds of the Gardeners' Benevolent Institution, such an amount never having been realised before for the same number of small Nectarine trees in pots.—"Fruit Manual."

NOTES AND QUESTIONS ON THE FRUIT GARDEN.

Somerset Black Apple.—I find this to be a very good and distinct late Apple. It is one sent out by Mr. J. Scott, of Merriott. The tree is a free bearer and free grower.—R.

Double Flowered Deutzia crenata.—This deserves as much attention as D. gracilis. It is quite hardy, deciduous, and produces great quantities of double blossoms. The flowers are white and slightly tinted with pink on the margins of the petals. It submits readily to early forcing.—J. Muir.

Belle Angevine Apple.—This is an old but beautiful French Apple which differs from the Blenheim, although at first sight one would imagine that the two were alike; the Belle Angevine has, however, been cultivated in France over 100 years, and the Blenheim, I think, can hardly be so old.—J. Scott.

THE FLOWER GARDEN.

ORNAMENTAL GRASSES.

By J. C. NIVEN, Botanic Gardens, Hull.

It is a matter of no small surprise that the value of Grasses should have been, until recent years, so little appreciated, adapted, as they are, either for indoor decoration or for putting the finishing touches to a garden landscape. Scarcely a wood occurs, or even a meadow, from which the most graceful Grasses cannot be obtained; yet the only two varieties that appear to have had their attractions acknowledged in years gone by were the Quaking or Trembling Grass (Briza media) and the Feather Grass (Stipa pennata). The latter, with its long and graceful feather-like awns, has always commanded admiration, and it holds a foremost position amongst Grasses. To the former, however, justice was rarely done, dense bunches being used, wherein the regularity of the stalks and the compact arrangements of the heads appeared to have been the primary considerations, completely ignoring the trembling peculiarities to which it owes its name, and which, had each culm been free, would have been plainly noticeable in the motion of the tiny heart-shaped spikelets, to which the lightest breath of air imparts the quivering motion. So far, indeed, are these from exhausting the list of our own wild Grasses that possess sufficient elegance to adapt them for the purposes to which we have alluded, that I might name others by the score. I shall, however, confine myself to a selection, leaving Nature's remaining riches to be utilised where those I name cannot be obtained. Taking them in their order of merit, I would first mention

Lagurus ovatus.

Festuca cœrulea.

The Hairy Wood Broom Grass (Bromus asper).—Who, that has walked through any of our plantations, has not been struck by the extreme beauty of the sweeping pendent lax panicles which this Grass presents? A few culms inserted in a vase of flowers produce an effect obtainable by no other means. The Sterile Broom Grass (Bromus sterilis), generally found at the foot of hedgerows, if it lacks the extreme beauty of the preceding, has an elegance of its own in the length of the awns and the russetty brown colour which its glumes attain ere they have reached maturity. Amongst the Bent Grasses, the Silky form (Agrostis spica-venti), the branches of whose large and wide-spreading panicles become agitated by the slightest breeze (hence the appropriate character of its specific name), stands without a rival. The long awns give it a silvery or silky appearance. This plant is rarely met with in cultivation, nor, indeed, are its native habitats by any means numerous. The stems are so slender, and the panicles so large, that, were it not that it is generally met with in hedgerows—whose support it evidently enjoys—its dense inflorescence would soon be laid prostrate on the ground. Our two native Melic Grasses—in the wood and mountain forms, known respectively as Melica uniflora and M. nutans—though producing a limited number of flowers, ought to be especial favourites. In the former, the flowers are very gracefully arranged along one side of the rachis; in the other they are always more evenly distributed, though equally limited in number. The outer glumes are of a deep chocolate colour, and the stems, which attain a height of 18 inches to 2 feet, are sparsely clothed with bright green leaves, which much enhance the decorative beauty of the plant. Both these species are abundant in all our northern woods.

Elymus arenarius.

Lamarckia aurea.

Agrostis pulchella.

The Beard Grass (Polypogon monspeliensis) and the **Hare's-tail Grass (Lagurus ovatus)** are two species, both of which, though somewhat formal in the outlines of their spikes, possess much beauty in the soft silky texture which renders their names so appropriate. The former is rare as a British plant; the latter doubtfully native, but frequently met with in cultivation, and forming an important element in those bouquets of everlasting flowers and Grasses, which are now imported largely from the Continent.

The Hair Grasses contribute their quota of elegance, the almost universal tufted variety, Aira cæspitosa, forming a handsome object with its semi-globular array of elegant stems, relieved by its admirably contrasted rigid foliage, but for grace it is far outrivalled by the silvery species, A. caryophyllea, whose light airy panicles glisten in the sunbeams.

The Great Reed (Phragmites communis) is familiar to all, alike for the persistency of its dense branching panicles, which retain their inflorescence long after the autumnal tints have destroyed their freshness, and in the cold winter months they look like spectral reminiscences of a happier and sunnier time. These are, however, not unfrequently collected for the purpose of being dyed, and, when the colours are well selected, form by no means inelegant objects for indoor decoration in a cut state.

Fescue Grasses.—Amongst these there are several which, by their compact rigid growth, as is well shown in the accompanying illustration, as also by marked distinctions in the colour of the foliage, have established for themselves a position even in the front ranks of the flower garden. Festuca cæsia and glauca form tufts of a charmingly bluish-grey neutral tints, such as no other plant we know of can give so effectively; nor is the deep green of our own native F. ovina to be despised, and it is especially adapted for a dry sandy soil, where its original compact tufty character is retained in perfection. There is a species from Vancouvers Island, with leaves almost as fine as the human hair, and of a deep green colour. This, I believe, is not yet named—beyond the provisional name I have given it of Festuca capillaris. In colour it is a dark green and it is a plant that should be more generally known.

Panicum capillare.

Lyme Grass (Elymus arenarius).—The vigorous growth of this sea-side plant, whose value in rendering the material aid it does to the building up and holding together a natural sea wall, which even the mighty works of our great engineers cannot rival, will be easily understood by those whose rambles have taken them to the sandy portions of our shores. Beyond this it appears to be amenable to cultivation in inland districts, and, indeed, in strong clay soils where the somewhat loose disposal of its glaucous green leaves renders it an ornamental plant. In this respect it is however eclipsed by its giant relative from the south of Europe, E. giganteus, the general character of which is well depicted in the accompanying figure. We have by no means exhausted the list that might be selected from our British Grasses, nor could we readily do so. I must pass on to a review of some of those, that, though belonging to warmer climes, are yet capable of summer cultivation in our gardens. A few of the more important of these I will now briefly describe.

Taking them in their order in respect of stature, I will begin with the dwarfest, Lamarckia aurea, a native of the south of Europe and north of Africa; this scarcely exceeds 6 inches in height, but when covered with dense masses of its pendent gold-tinted spikelets, it becomes a very attractive object in the front rank of a mixed border. It is only of annual duration, and as it seeds and grows freely when sown in the open air in April or May, it is a plant which may be cultivated by anyone possessing even a small garden. I have just said it seeds freely, but a watchful eye must be kept so as to gather the seeds when ripe, as our winter frosts destroy their vegetating powers.

Panicum virgatum.

Agrostis pulchella or **elegans**, as it is sometimes called, is appropriately named, and this will be obvious on glancing at the group of sprays which here represent the plant. Like the preceding, it is an annual, and by the time the blooms have fully expanded the scant foliage below has all but disappeared. This plant is grown largely on the Continent for mixing with everlastings in bouquet making, and its charming effect will be familiar to most people in the silvery sprays that rise with lightness and grace above the general outline. It is a native of southern Russia and grows and seeds freely in any light soil.

Panicum.—This genus represents a large family of tropical Grasses, many of them far too tender for outdoor cultivation in our fickle climate. Of P. capillare, two forms are hardy, the major and minor; the former is coarse and attains a height of 2 feet, the latter, whose height scarcely exceeds 12 inches, is the one admirably depicted in the accompanying wood-cut, and from it a very correct idea of the beauty of this species may be gathered; the flowers are in large masses, as much as 6 or 8 inches in diameter, which burst from the broad heavy foliage that clothes its dwarf stems, and when fully expanded it can be compared to nothing less than a cloud, so delicate are the tiny stalks on which the spikelets are supported. It is a native of South America and should be sown in heat in the spring time, and gradually hardened off in a cold frame before finally planting out, so as to encourage an early growth, otherwise you may find its panicles bursting forth only in time to be nipped by the early autumn frosts. Under the former conditions it seeds freely, and, when cut before full maturity, forms an exceedingly pretty decorative object. P. virgatum is a hardy North American species, not very

Briza maxima.

generally met with in cultivation, but, as will be inferred from the accompanying figure, it forms a very handsome plant. It will not be out of place here to mention two species, P. palmæfolium and P. plicatum, closely allied and equally beautiful, which are sometimes met with in stove cultivation. In both plants the leaves are broad, fully an inch across, gradually tapering to the points, and gracefully recurved; this, combined with the plaited parallel lines, gives a variety of light and shade that has a very pretty effect. Neat plants grown in moderate sized pots, would have, apart from the flowers altogether, an exceedingly effective and elegant appearance if used for table decoration, nor would many persons believe them to be other than miniature Palms

Briza maxima (the large Trembling Grass of south Europe) is an old favourite, and was much more cultivated when annuals were in vogue than it is now. Its large nodding ovate spikes have a very graceful appearance as they grow, and are equally good in a dried state. It is so nearly hardy that, in mild winters, it is not unusual to find the autumn crop of seedlings, around the parent plant, growing so vigorously as almost to lead one to suppose that it ought to rank amongst our perennials.

Pennisetum longistylum.

Pennisetum longistylum is a lax-growing spreading plant, too tender for our winters; but, when planted out in spring, it produces, towards autumn, numbers of spikes of lovely long-bristled flowers that remind one of some of the more delicate forms of Hordeum, such as H. jubatum. The spikes, however, are longer, and the awns less expanded. It is, I believe, a native of north Africa, and rarely ripens its seed in this country.

Hordeum jubatum.

Asperella Hystrix (or, as it is sometimes called, Gymnothrix Hystrix) is well named. The Porcupine Grass used, of old, to be referred to the genus Elymus, to which, in general habit of growth, it is closely related; but, in the peculiar arrangements of the spikelets, which expand almost at right angles with the main rachis, all the other parts of the flowers being extremely slender, the barbed glumes may not be inaptly compared to "quills upon the fretful porcupine." It is a good hardy perennial, grows 3 or 4 feet high, and is a native of the Crimea and the northern shores of the Black Sea.

Erianthus Ravennæ.—In this woolly-flowered Grass, we have a bold vigorous plant, whose branching, silvery panicles rise to a height of 5 or 6 feet from the midst of broad and gracefully recurved foliage. It is a native of North America; and, being a late autumnal bloomer, should have a warm and sheltered corner, by means of which an early summer growth may be obtained. It likewise delights in a deep rich peat soil. Though by no means so graceful as our well-known Pampas Grass, it is still a very desirable plant, and deserving of more general cultivation.

Coix Lachryma (more familiarly known by its popular title of Job's Tears) dates its introduction into cultivation some three centuries or more back. Apart from the intrinsic beauty it possesses when well and vigorously grown, it is, structurally speaking, one of the most exceptional and singular Grasses in cultivation. Its broad leaves, with ample sheathing petioles, as well as the unisexual character of its flowers, at once indicate its relationship to the Indian Corn. The hardened glumes, when matured, are of a greyish porcelain colour, and being broad at the base, gradually tapering downwards, as they hang suspended, have somewhat the appearance of petrified tears—hence the origin of the name. The plant is a native of the Levant, and extends throughout Asia as far as the East Indies; it attains a height of 3 or 4 feet, and ought to be sown early in spring in a gentle heat. It rarely ripens its seeds here, but is always obtainable from the Continent, and is well worthy a place amongst our ornamental Grasses.

The Pampas Grass (Gynerium argenteum), a native of the vast prairie tracts of country southward of the wide extending valley of the La Plata, resists our severest frosts. So general is its cultivation at the present time that I will content myself by only alluding to the fact that there are several varieties possessing well-marked distinguishing characters—the chief variations arising from the denseness or laxness of the panicles, as well as from the tints of colour they assume; one especially marked form is that in which a rose-coloured tint predominates—at present not frequently met with, but destined to become a general favourite. There is another species from Brazil, G. saccharoides beside which our popular favourite becomes but a mere pigmy, seeing that the culms in this case attain a height of 20 to 30 feet, the massive inflorescence alone being upwards of 6 feet long, the secondary branches depending downwards in long wide-spread graceful curves. I am not aware that the species has ever been in cultivation, but though, doubtless, too tender for outdoor culture, it would be a most appropriate plant for some of our large conservatories and winter gardens.

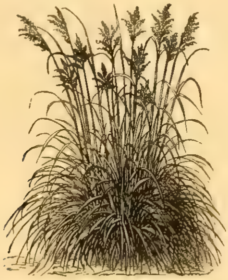
Gynerium argenteum.

Arundo conspicua.—This grass from New Zealand, equal in beauty and value to the Pampas grass, was admirably figured in a previous volume of The Garden (see p. 581, Vol. VI.). When growing vigourously and thoroughly well established its size is little inferior to that of the Pampas.

Arundo Donax was frequently alluded to by old Greek writers under its specific title. Its stems are erect and stout, and, when divested of their foliage, they present the regularly jointed appearance of an ordinary Bamboo; there is no mass of radical leaves as in the preceding species, but in lieu thereof they are distributed all along the stems in an equi-distant manner; they are nearly 2 inches wide and of a bluish-green. In its native country along the shores of the Black Sea and some portions of the Mediterranean, these stems acquire a height of 9 or 10 feet, each being terminated by the inflorescence; possibly it may have produced flowers in some favoured corner of this country, but it has never been my good fortune to see it bloom, nor do I remember ever seeing any record of such an occurrence. Apart from its blooming altogether, it must always be an attractive plant, its stiff upright stems betokening a wind-resisting strength, for which a not inappropriate motto would be "I will not bend, neither will I break." In culture it is somewhat whimsical, growing like a weed in some places, a fact to which our friend the Rev. H. Ellacombe will bear testimony, and in others merely maintaining a miserable existence, as is the case with us. Our sub-soil I apprehend is too cold, and although a swamp-loving plant in its native localities it prefers in our colder climates to be high and dry in a good light sandy soil. As the thick hard underground stems and buds are very near the surface, it is always a wise precaution to give it a little protection during winter in the way of Fern or light litter of any sort. There is a handsome variegated plant which usually goes by the title of A. Donax variegata, but it lacks the robustness of the true plant and has much narrower leaves, and I think I am not wrong in saying it is absolutely tender. My opinion is that it is the variegated form of a perfectly distinct species, and though adapted for greenhouse and stove culture, possesses no value as an out-door plant.

Coix Lachryma.

The Indian Corn (Zea Mays) is, perhaps, one of the most stately of our Grasses. If sown early in heat and planted in a rich soil it will attain a height of 10 or 12 feet, and, with its unbranched stem, its broad massive leaves, from whose axils spring the cylindrical spikes of female flowers, each terminated by a tassel of filiform styles, and the gracefully pendent panicle of male blossoms with which the stem is terminated, it forms an essentially tropical feature in the garden. There is a very pretty variegated form, possibly belonging to one of the dwarfer species, and originating, it is said, in Japan. To cultivate Indian Corn, a locality tolerably well sheltered from the wind should be selected, as otherwise the wide leaves are sure to be damaged, if, indeed, the whole plant be not uprooted. In strong vigorous plants, it will be observed that roots are freely emitted from the stem above the surface of the ground, and it is a good plan to bank up the base of the stems either with the surrounding soil or, better still, with some well-rotted manure, which latter not only encourages the emission of stem roots, but also supplies them with ample food when they are emitted, and materially assists in enabling the plant itself to resist the force of the wind.



Erianthus Ravennæ

Bamboos.—Amongst all the Grasses, none are so qualified to impart a distinctly tropical appearance to our northern vegetation as the various forms of Arundinaria and Bambusa. Those from the higher altitudes of the Himalayas, and from China and Japan—varying in height, as they do, from a few inches to 18 or 20 feet—are, in many localities, though not in all, perfectly hardy; and the beauty of their shining jointed stems, peeping from amid a showery mass of their bright green airy foliage, has a special charm that none of our ordinary Grasses possess. These are so well worthy of a separate article, that I will do no more than mention them at present, completing my list by a plant that, though not by any means a Grass, has really so much of the aspect of one that, for matters of popular description, it might well be included amongst them. I allude to the Typha latifolia—known in ordinary parlance as Reedmace, Cat's-tail, or Club Rush—a water plant by no means uncommon in our fenny districts, with long erect sword-like leaves, that rise to a height of 4 feet or more; the stems, of about the same height are terminated by dense masses of dark, soft, velvety fruit, forming complete cylinders, sometimes single, sometimes in duplicate. Its roots are generally submerged, and may be said to luxuriate in 2 or 3 feet of water. It is a plant admirably adapted for the prominent points of the margins of a lake, having a marked erectness of growth, which renders it suitable for use in such positions. But, however like a Grass it may be, it claims a Natural Order to itself; and one, too, which, structurally speaking, is far removed from the graminaceous plants.

Typha latifolia.

WINTER AND SPRING GARDENING.

The principal objection to modern flower gardening is the sudden transition from a blaze of bloom to long dreary months of unfurnished beds, unless special provision is made in the shape of spring flowers and bulbs, which, when judiciously blended, produce a very pretty effect in spring, but the majority of them are by no means effective during the dullest and darkest months of the year, viz., from November to February, when people are often confined to the house, and the view from its windows is the only one obtainable. Many of the most effective spring flowers that are annually raised from seed, such as Silenes, Nemophilas, and others, will not stand ordinary winters if sown early enough to fill the beds before frost sets in; if sown late, and the plants are small, they are hardy enough, but beds filled with them are by no means satisfactory until spring growth commences and the bulbs begin to break through the soil. After trying several combinations for producing a cheerful effect from the time the summer bedding plants are removed until the season comes round for replacing them, I find that the most satisfactory plan by which we can get beds really well furnished and full of brilliant or graceful foliage, supplemented by a mixture of flowering plants and bulbs as the spring advances, is to obtain a quantity of very dwarf well-rooted evergreen shrubs, such as Hollies, Rhododendrons, Euonymuses, Laurustinuses, Laurels, Berberries, Aucubas, Heaths, Arbor-vitæs, Cupressus, Junipers, Vincas, and others, and with them fill the centres of large beds or vases quite full, edging with hardy flowering or fine foliaged plants and bulbs in proportion to size. In the case of large beds an outer edging may be made of Golden Feather Pyrethrum, London Pride, or Echeverias, with Crocuses mixed, and a second line of Myosotis, Silene, &c., with Hyacinths or Tulips, and a back line of Wallflowers, with Narcissus or Jonquils. Smaller beds should only have one line of flowering plants, and the bulbs should be planted between the dwarf shrubs. These look at all times bright and cheerful, and, being perfectly hardy, defy all weathers. Shrubs are as easily obtainable in any quantity as bulbs, and if shortened back both root and branch in spring, when planted in their summer quarters they will last several seasons, or when too large for this purpose they may be finally utilised for making new plantations and improving the borders of woodland walks. Sheltered positions might be reserved for Pansies, Daisies, and the earliest harbingers of spring, as in mild seasons they are seldom destitute of floral beauty. JAMES GROOM.

Henham.

Blue-flowered Hydrangeas.—I was much struck, in 1869, with some bright blue-flowering Hydrangeas which were growing in front of a cottage in the Vale of Aber, on the Menai Straits. In 1874 I re-visited that spot, and procured cuttings of these plants; they were very large and vigorous. I brought these cuttings to Surrey, and they grew well in a greenhouse; this year they produced pale pink flowers. I should mention that they were potted, not in their own soil, but in garden soil taken on the Straits, not far from Aber. I was inclined to explain the failure to grow blue flowers by the absence of sea air and influence. There may be something in this, but it cannot explain the fact, because blue flowers occur at long distances from the sea. In particular I have a vivid recollection of a remarkable grove of blue Hydrangeas in the lovely garden of the Villa Serbelloni, at Bellaggio, on Lake Como.—DYCE DUCKWORTH, *Sandhills, Betchworth, Surrey.*

The First Blue Hydrangea.—Phillips, in his "Flora Historica," says, I remember seeing a fine plant of Hydrangea with beautiful blue flowers at a cottage situated on a dreary common in Hampshire, where no one could, at that time (1820), have expected to have found even a common pink-flowered Hydrangea. The owner of the plant, a poor woman, refused ten guineas for this flower; it was the only one that had been seen in this country, and the circumstance of a poor cottager having refused so large a sum for a plant, excited great curiosity, and brought all the neighbouring inhabitants to see it. The owner, although she did not like to part with the plant, that had been reared by a child whom she had lost, gladly sold cuttings of it to all who required them, every one of which, when they blossomed, produced flowers of the original rose-colour. I have since learned that the poor woman's plant had been reared from a cutting of the common rose-coloured variety, and that the change was owing to its being planted in the soil of the heathy common on which she resided, mixed with a portion of turf ashes, whilst those who obtained cuttings planted them in good garden soil." When I resided in Surrey, it was our usual practice to strike cuttings from the common Hydrangea in July in common mould, then to pot them in soil taken from Bagshot Heath, and the result invariably was that we had blue Hydrangeas, which were very effective, both for house and conservatory decoration early in spring. We have also near here, in a cottage garden, the soil of which is strongly impregnated with iron, several Hydrangeas that produce blue flowers, the original cuttings of which are known to have been taken from the common rose-coloured variety growing in the garden at this place.—JAS. PINK, *Lees Court, Faversham.*

Moss for the Protection of Herbaceous Plants.—Many are dissatisfied with the untidy state of their borders and bulb beds, in which the less hardy plants are covered with litter, leaves, or ashes, for protective purposes; and often elect to let them take their chance rather than spoil the appearance of the garden. This is, in fact, the case to a lamentable extent; and usually brings its own punishment by the non-appearance of some favourites when due. Might not your readers assist each other in this difficulty by suggesting some adequate means of protection, which, at the same time, would not be unsightly. I should think that, after laying on some coal-ashes, leaves, or whatever may be chosen, a thick covering of fresh green Moss, laid over the border, and neatly secured by a few twigs, would look pretty, in addition to being clean and thoroughly effective. The material might easily be removed, and can be procured merely for the trouble of collecting. If closely or tightly pegged down, it will in itself alone be sufficient protection for many plants; and its appearance may be still further improved by the introduction beneath it of some Crocuses, and other bulbs, which, when blooming upon a carpet of Moss, would produce an effect scarcely otherwise obtainable; when their work is done, they may be removed with the Moss.—T. MCGANN, *Burrin.*

The Swiss Anthericums.—Few flowers are so beautiful as these, when they grow in their homes among the Alps. I have gathered the three species that occur in Switzerland. The largest and noblest (A. Liliastrum) is a lovely plant, with its fine snow-white flowers, two or three on the stem, like tiny white Lilies, and its long grassy leaves. I have met with it abundantly in some of the Bernina pastures; it also occurs in the Tyrol in equal abundance. The next in size and beauty is A. Liliago. This is smaller in its flowers, but hardly less beautiful. It occurs in somewhat drier places than the former. The third and the smallest is A. ramosum. This is much less pretentious in its inflorescence, the flowers being in little loose panicles, much after the fashion of the Australian A. pendulum. This habit gives to the stem a somewhat branched appearance, and hence the name. This species occurs in stony, rough ground, and is more general in its distribution. It abounds in the alluvial meadows in the valley of Lauterbrunnen.—PETER INCHBALD, *Hovingham Lodge, York.*

Churchyard Gardens.—Could you favour me with a few hints on the subject of laying-out and planting with suitable trees the closed churchyards in the vicinity of the City—such a one, for example, as St. Luke's, Old Street. The ground measures about, from south to north, 290 feet; east to west, 160 feet, and is a regular parallelogram.—J. BIRKETT. [Level the whole of the area as well as circumstances will permit. All the tombstones should if practicable, be laid flat. Sow down with Grass the spaces between the stones, if they are sufficiently wide and open; but, if the stones cover the ground thickly, a coating of gravel would be preferable. Retain existing, or form new, paths, if the public is admitted. Plant suitable trees for effect and shade, such as Acacias, Ailantus, Laburnums, Planes, and Poplars of different sorts, and weeping trees; also, for embellishment, deciduous and evergreen shrubs in artistic and well arranged groups, green and variegated Euonymuses, Box, Aucubas, and Japanese Privet, Lilac of different sorts, Weigela rosea, Philadelphus, Guelder Rose, Forsythia, Prunus triloba, and plenty of Yews, and Ivy where the latter is suitable. Such work should always be entrusted to a skilful and painstaking man, who makes gardens of that kind a study or speciality.—J. F. M.]

Begonia Frœbeli.—This new species was first exhibited in this country by its introducers, Messrs. Frœbel and Co., of Zurich, on August 4th, 1875 (see THE GARDEN Vol. VIII., p. 121), when it received a first-class certificate. In habit it is quite distinct from all others, having large obliquely cordate, hairy leaves, hoary beneath, and very variable in size, the largest being from 6 to 12 inches in length, and from 3 to 8 inches in width. It has crimson-scarlet flowers, which are borne in erect panicles from 10 to 15 inches in height. The male flowers are four-petalled and nearly 2 inches in diameter, while the female flowers are five-petalled, and about 1 or 1½ inches in diameter. The peduncles themselves are of a bright red colour spotted with crimson. This species has been used with success for bedding purposes on the Continent. It is a welcome addition to our hardy tuberous-rooted species, and will be invaluable to the hybridiser, the panicles of vivid flowers being borne well up above the tufted radical leaves on separate stems, as in B. Veitchii or B. rosæflora, only we have here many-flowered branched panicles instead of few-flowered scapes. This, one of Mr. Roezl's discoveries on the Andes of Ecuador, where it luxuriates at altitudes varying from 8,000 to 10,000 feet, or in a temperature where the Strawberry seems perfectly at home, is well figured in the January number of the "Illustrirte Garten-Zeitung," t. 1. We believe Mr. B. S. Williams has made arrangements to distribute it in this country.—B.

NOTES AND QUESTIONS ON THE FLOWER GARDEN.

Rose Duchesse de Vallambrosa.—M. Joseph Schwartz, the well-known rosarian of Lyons, is now sending out this new perpetual Rose, which is described in enthusiastic terms by those who have seen it. It is a seedling from Jules Margotin, and is a plant of luxuriant growth.

Root-work versus Rock-work.—Mr. Groom contributes many sensible remarks to THE GARDEN, but I for one cannot agree with him that root-work is right for Alpine plants in any position, nor is it the best material for hardy Ferns. Stumps of trees, roots, &c., usually employed to form what is called "root-work," should never be employed in the garden except for the purpose of forming banks or screens, to be quickly covered with hardy climbers and other plants.—W. S.

THE AMATEUR'S GARDEN.

By THOMAS BAINES.

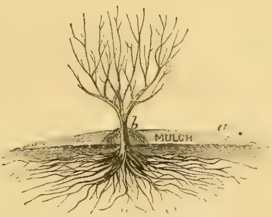
Pruning Apples, Pears, Plums, and Cherries.—When the different kinds of bush fruits are pruned, Apples, Pears, Plums, and Cherries should receive similar attention. In amateurs' gardens, where usually the most has to be made of the room by cropping as much of the space as possible amongst the different trees grown in them, the whole of the Apples should be in the form of moderately sized bush-shaped trees, grafted on the French Paradise stock; as, where that is the case, the manure necessary for the various vegetable crops will be rather an assistance to the trees than otherwise; whereas, if they are grafted on ordinary stocks, unless severe root-pruning is resorted to, their growth becomes so strong as to prevent their bearing, except very meagrely; consequently, where the trees are of the latter description, others should be planted that are grafted on such stocks as will fruit freely, so as gradually to take their place. The pruning of these trees which bear freely is reduced to a minimum, as they make comparatively little wood, and do not require the use of the knife further than to shorten any shoots that may be out-growing the rest, and to cut out those that cause too much crowding. It should be remembered that where the branches are too close, they are proportionately weak, and that trees in such a state not only produce smaller and worse coloured and flavoured fruit than such as are in better condition, but that they also suffer more in windy weather, through the fruit getting knocked off by the branches coming into violent contact with each other. Those who object to root-pruning Apples and Pears, and who have them upon vigorous-growing stocks in land that is manured for culinary vegetables, will, in most places, experience little trouble in gathering the fruit next season, as, after the dull, damp autumn which we have had, very few bloom-buds have set—in many cases next to none—appearances, in this respect, being worse in many parts than they have been for some years. The same applies to Pears on free stocks, under similar conditions of soil and root nutriment. When the growth of trees thus circumstanced is very strong and gross, it should not, as is often done, be severely cut back, as that tends to aggravate the evil rather than diminish it, by inducing the formation of similar wood next season. The shoots should be sufficiently thinned out to give plenty of room and admit light and air, shortening them to about two-thirds their present length. Although four months ago was the best time for root-pruning, still it is not yet too late to perform this operation in order to induce the production of fruit-bearing wood next summer; but no time should now be lost in completing such work, for if deferred until the buds have at all began to move, it is certain, more or less, to injure the trees. Directions for carrying out the operation were given in the amateur's garden for August 28th. Apples and Pears on espaliers by the sides of walks, or on trellises over them, should be carefully trained, so as not to allow any shoots to outgrow the others; loosen, too, the old ties, so as to give the branches room to thicken, for, if such ties are not removed from branches in vigorous growth, they often get too tight before the end of the summer. They should all be examined every year, as, when the twine gets rotten, it is sure to give way during the summer, broken shoots being often the result, especially if heavily laden with fruit. The old system of horizontal training is not much practised at the present day, the ordinary fan-shape being, for many reasons, preferable, not the least important among which being a more even distribution of the sap, whereby the growth is better equalised over the whole surface of the trees than it otherwise could be. Their ability to fruit evenly from bottom to top is also more fully ensured. Where old Pear trees trained horizontally exist upon walls, it frequently happens that the spurs have been allowed to get very long, projecting from the branches 8 or 10 inches. Under such circumstances, they not only have an unsightly appearance, but the bloom so placed when open, does not receive nearly so much protection from the wall on a frosty night as it would do if the spurs were shorter. In the case of trees in this condition, it is advisable to cut the spurs clean off close into the branches, but, if this were done over the whole surface at once, there would be no crop for several seasons; consequently it is better to remove such over-grown spurs by degrees, taking them off alternate branches on each side of the tree, and, as soon as young bearing wood is formed on these, the remaining half may be operated upon in a similar manner. Trees with long spurs often bear a few fruits near the extremities of the branches, and little or none elsewhere. In such cases the remedy is to cut each alternate branch right out, or at least to within 6 or 8 inches of the point from where they spring from the bole of the tree. They will thus be induced to make strong shoots, one of which should be laid in to occupy the place of that removed. By this means trees can be gradually re-furnished with young branches that are often as fruitful as those on younger trees, and even more so. These operations are, of course, recommended upon the assumption that the trees appear healthy and in good condition at the roots, and that the kinds are worth retaining; if the sorts are inferior, but the trees healthy, the branches should be grafted with some approved varieties at about 6 inches from the main stem. Where evidence exists that the roots are unhealthy, it is better to remove the trees altogether and trench the border, getting out all the old roots, and, if procurable, adding some new soil, and re-planting with young trees. In dry, over-light soils, the addition of some good heavy loam, and a moderate quantity of rotten dung dug into the space occupied by the roots of old trees frequently improves their condition considerably; but, when they bear satisfactorily, and are strong enough to make a fair amount of young wood each year, it is better to leave well alone, so far as the introduction of strong stimulating manure is concerned, as the effect of the latter, on some soils, is to induce the formation of wood at the expense of fruitfulness. Plums and Cherries, when grown in the open garden, do not need so much pruning as Apples and Pears; on the contrary, they merely require over-strong growths to be cut back in such a manner as to keep them from out-stripping the weaker-growing wood, and also the removal of such as are calculated to overcrowd the trees. Plums on walls should not have their branches too much crowded, for, when allowed to get into such a condition, they do not often bear freely. Cherries, if in a good state at the roots, usually form plenty of fruit spurs; in most soils these should be dressed with soot and lime, as recommended in the case of Gooseberries and Currants; for, where bullfinches or tom-tits are plentiful, they attack the trees, and in a very few days clear off almost every fruit bud.

Miscellaneous Fruits.—Amateurs are sometimes induced to prune Peaches and Nectarines early, but it is a mistaken practice, as they should be left until considerably later. Figs, except in the most favoured southern and western counties, or near the coast, should be loosened from the walls; the branches should be carefully drawn together with a piece of strong cord or stout straw ropes, and the whole should be covered with clean straw, encircling the branches thus bound together five or six inches in thickness, commencing near the bottom of the trees. Straw thus put on will not only protect from frost the young fruits that are formed, but will likewise throw off rain, for, should it become wet through to the branches and afterwards get severely frozen, the trees would be in a worse condition than if no protecting material was used at all. To prevent the rain thus penetrating the straw to a depth that will do harm, the branches, when the covering is completed, should be placed in nearly an upright position. There are several advantages in getting pruning done early, especially in the case of such fruits as are grown on walls, the first of which is, that when completed it gives an opportunity for preparing the soil for whatever vegetable crops are grown on the borders. But, in digging the ground occupied by the roots of good fruitful trees, the fact should never be lost sight of, that the fruit should be the principal consideration, and that there should be no interference with the roots so as to injure them; for this reason the spade ought never to be used in digging fruit-borders; but the work should invariably be done with a fork instead, and even this should be used so as not to cause injury, especially to the small feeding roots that, in the case of trees in a good condition, usually lie near the surface. The young shoots of both Apples and Pears that are cut out will be found to be useful as stakes for Pelargoniums, Calceolarias, Achimenes, and similar pot plants. All that are straight and strong enough should, therefore, be tied into bundles and put away for use in that way in the ensuing spring. For soft-wooded subjects, such as those just named, they are quite as good, and look as well, as painted deal sticks. Prunings of Gooseberries and Currants should be cleared off, and either charred or burnt; the ground should then be manured or forked over, but in such a way as not to injure the roots, which lie very near the surface. Bush fruits are often allowed to go short of manure, even in poor hungry land; thus treated they bear fruit enough in quantity, but it is deficient in size; it is far better to limit the space occupied by them than attempt to grow more than can be well taken care of. An impression appears to be almost general that light manures, such as guano and superphosphate, are only fit for vegetables; but this is a mistake, as I have proved by actual experiments. There is, in fact, no manure that is more effectual or so quick in its action upon bush fruits as these, especially good guano, and, where solid manure is deficient, amateurs cannot do better than use the above, always being mindful to obtain them from sources to be depended upon as to their genuineness.

Hardy Fruit.

Whilst the trees are dormant the most important work is thoroughly clearing them from insects and parasites of every kind. Apples infected with American blight should be thickly painted with a strong solution of Gishurst compound, in which has been dissolved a small quantity of glue to cause adhesion. The consistency is obtained by the addition of either soil or clay, and the mixture when prepared should be put on with a soft brush. Apricots and Pears are subject to attacks of scale, for the eradication of which, there is nothing so effectual as the composition just named. The trees should be unnailed, in order that no part may be missed in the operation; the walls should also be painted with the same composition in a thinner state. Moss and Lichen, generally so prevalent on old orchard trees, may be destroyed by means of a dressing of soft soap and brine; fresh-slaked lime is equally effective, and it may be applied with an ordinary white-wash brush; soot and cow-dung mixed with it will subdue the whiteness of the lime. As a preventive against red spider, and green and black fly, to which Peaches, Plums, and Cherries are especially liable, as soon as the trees are nailed or tied, let the whole be thoroughly syringed with the following mixture, viz., 2 gallons of tobacco water, 4 lbs. of soft soap, ½ lb. of black pepper, and 1 lb. of glue. Dissolve the whole together and mix with 20 gallons of rain water. The above will be sufficient for all the trees in an ordinary sized garden, but smaller or larger quantities can of course be made as may be required. In order to prevent the ravages of the Gooseberry caterpillar, after pruning and dressing the trees, spread a thin layer of tanner's bark under each tree—a simple remedy, but nevertheless one which rarely fails. Now that the weather is open, all planting operations should be brought to a close as soon as possible, staking and mulching the trees at once, in anticipation of high winds, severe frosts, or drought. Fork over the surface of the ground about old and impoverished trees, and give them a liberal dressing of rotten manure; if manure is scarce, charred vegetable refuse and wood ashes will answer the purpose.—W. Wildsmith.

Mulching.—This process, which consists in spreading half decomposed manure or some other open material over the surface of the ground, has two objects. One is to prevent excessive evaporation in summer, and the other—a less important one—is to protect the roots in winter. The accompanying little wood-cut, from "Rural Affairs," shows a section of the way in which it is done—the wide surfacing *a* being the proper way, the section of the small mound *b* showing another way, which is almost useless.—F. H.



Indoor Fruit Department.

Vines.—All late Vines from which the fruit has been cut may now be pruned, the best of the eyes being saved for propagating purposes where young Vines are raised. Scrape all the loose bark from the rods, and wash or paint them as recommended some time ago, but the removal of the bark must be effected with care, otherwise it does more harm than good, from the wood being sliced and injured. A knife should not be used unless about the spurs, but a firm rubbing with the hand between these will clean off all bark which ought to be displaced. Remove the loose surface soil down to the roots and replace it with rich fresh material, and the entire border may be thoroughly watered, as soon as the dressing has been completed, for no Vine border should ever be allowed to become parched throughout the winter or the roots will inevitably suffer. If the drainage is good underneath, as it always should be, there is no danger of the soil becoming sour, through damp when the Vines are resting. Many Vineries that have been started will now be well filled with plants being forced into flower. The temperature of the Vinery is well suited for such subjects, but care must be taken that there are no insects about such plants which are likely to be transferred to Vines. Mealy bug is often introduced in this way, and it is the most difficult of all insects to eradicate if once established on Vines. As soon as the shoots reach the supporting wires tie them at once, as they are not so easily fixed when they have grown to any considerable extent. When the bunch is quite visible pinch the point off the shoot at one joint beyond the cluster. In Vineries started at the beginning of December do not let the heat rise above 55° upon cold nights with 5° more during the day. Take what assistance can be had from the fermenting material on the inside border and add fire heat when necessary.

Pines.—See that the bottom-heat in recently started Queens, does not exceed 90° at any time. A rise above this should be checked by turning the valve and shutting off the under-flow of hot water for a day or two. Where there are no valves each pot must be loosened, so as to leave a small vacuum between the pot and the plunging material, so that the heat may escape. Do not keep the temperature high about any Pines that are not in fruit at the present time. High temperatures under these circumstances mean plants drawn out of their natural shape and other injuries.—J. Muir.

Peaches and Nectarines.—At this period of the season these require more attention than any other forced fruits; sudden fluctuations in temperature caused by fire heat must be carefully avoided. When the weather is clear, close with an advance of 10° on the night temperature, but when fruits are setting, we never consider it good practice to shut the house quite close. When they are in flower we never use the syringe, except, it may be, in the case of newly-lifted trees, the fruit on which is of less importance than getting them well established. Should green fly make its appearance, every portion of the bearing wood should be dusted with tobacco powder, and if this pest is very formidable fumigate with tobacco. We have put this into practice when the trees were in full flower, without apparent injury to the crop, but I do not recommend its being done as a rule, as tobacco is often mixed with injurious substances and tobacco paper is also impregnated with matters which do much mischief to plants and flowers of every description. Keep the atmosphere humid, but stagnant moisture should never be tolerated. From 50° to 55°, according to the state of the weather, is a safe temperature at this dull season. Later houses may be cleaned and pruned, and the bearing wood washed and dressed. As regards insects, syringing with Clarke's insect destroyer and also with an infusion of quassia chips immediately before the buds open, serves to keep them in check. Dryness at the roots or stagnant moisture, retained long in the soil do much mischief both to trees and crops, and must therefore be avoided. A close temperature from 45° to 50° is warm enough in the absence of solar heat.

Figs.—These may now be started, where means of medium extent exist. Those in pots, may have their bark well washed with soap and water, and if a bottom-heat, obtained by means of leaves or other material, which will keep a steady temperature of 80°, is maintained, they will do well.—M. Temple.

The Flower Garden and Pleasure Grounds.

All trees, shrubs, or plants, in the open air, whose power to resist the effects of a low temperature is a matter of doubt, should, ere this, have been protected to the extent they require. Of late a period of comparative inactivity as regards outdoor operations in this department has, owing to the weather, intervened, and time may have been found to take stock of the various kinds of bedding plants required for next season. It is advisable to have a rough sketch of the flower garden, with its various beds and borders, on each of which should be written the names of plants intended to be used in them, together with the probable number likely to be required. As regards the various kinds of bedding Pelargoniums, it is advisable to put in a sufficiency of cuttings of each sort pretty early in the autumn, cuttings made at that time being preferable to those struck in spring; and, by the time it is found necessary to place them under glass they will generally be found to be well rooted. With regard to new or scarce kinds, however, of which it may not have been possible to obtain sufficient cuttings in the first instance, the plants from the beds should have been potted up before they were injured by frost. They should have been kept in a growing temperature near the glass; and, if this has been done, they will, about this time, be in a condition to furnish another batch of cuttings, while the plants which were struck as cuttings in the autumn should now be shifted into larger pots, and if kept growing will, in a short time, admit of one or more cuttings being taken from each of them. This course should be pursued until the necessary amount of stock is obtained. Autumn-struck cuttings of bedding Calceolarias are also much to be preferred to either those struck in spring or the old plants from the beds, so that enough cuttings should be inserted during the month of October, and they should be wintered in cold pits protected by mats, or similar material, during severe frost. They are potted off singly, or pricked into boxes or frames in spring, there to remain until they can be transferred to the flower-beds. In the case of most other bedding plants, such as Verbenas, Lobelias, Ageratums, Iresines, Coleuses, Alternantheras, &c., it is quite unnecessary to insert more than a few pots of cuttings in the autumn; or to pot up a few of the old plants from the beds, for the purpose of furnishing cuttings for spring propagation. The entire stock of bedding plants of all kinds should be looked over, and dead and decaying leaves removed, every opportunity allowed by the weather of admitting fresh air to the structure which contains them. Mildew not unfrequently attacks the store pots of Verbenas and other plants at this season; and, whenever this is the case, the plants should be at once well dusted with flowers of sulphur, or the plants affected may be taken out of the pits, and placed for a short time in the open air, where they should be well syringed with a solution of Ewing's infallible mildew composition, in the proportion of a wine-glassful to a gallon of rain-water. A mild day should be selected for the operation; and, when dry, the plants should again be placed in their position under glass. See also that the bulbs of Gladiolus and tubers of Dahlias, &c., are now stored in places where they can be kept perfectly dry, and safe from frost. A compost of rich fertilising materials should be collected for the purpose of applying to the flower beds as soon as the spring-flowering plants have been removed. This compost should be frequently turned, in order that every portion may in turn be exposed to the action of the atmosphere, especially during frosty weather, as the beds have, as it were, double duty to perform, when a system of spring as well as summer bedding is pursued. Liberal treatment should be given in accordance with the known requirements of the plants intended to occupy them during the summer months. For some bedding plants the soil can hardly be rendered too rich, while for other species, such as the Pelargonium, &c., too rich a soil is not unlikely to result in a paucity of bloom. During very inclement weather, when out-of-doors operations are necessarily suspended, there are still various operations pertaining to this department which may receive attention, and which may be performed under the shelter of a roof, such as the preparation of pegs for fastening down Verbenas in the flower beds, Carnation layers, and stakes for the various kinds of plants in the beds which may require them. These stakes may be made of laths split and smoothed with the knife, and cut into various lengths and painted a dark green or brown colour, or they may be made from the straight twigs which are annually produced from the base of Filbert bushes, and from the twigs of the common Snowberry, &c., allowing the bark to remain on, and dipping 3 or 4 inches of the thick ends in hot pitch, which will render them more durable than would otherwise be the case. Labels of different sizes, upon which to write the names of plants, may also now be formed; these may be made of carefully selected deal laths, or they may be made of sheet lead or of zinc.—P. Grieve, *Culford, Bury St. Edmunds.*

Trees.

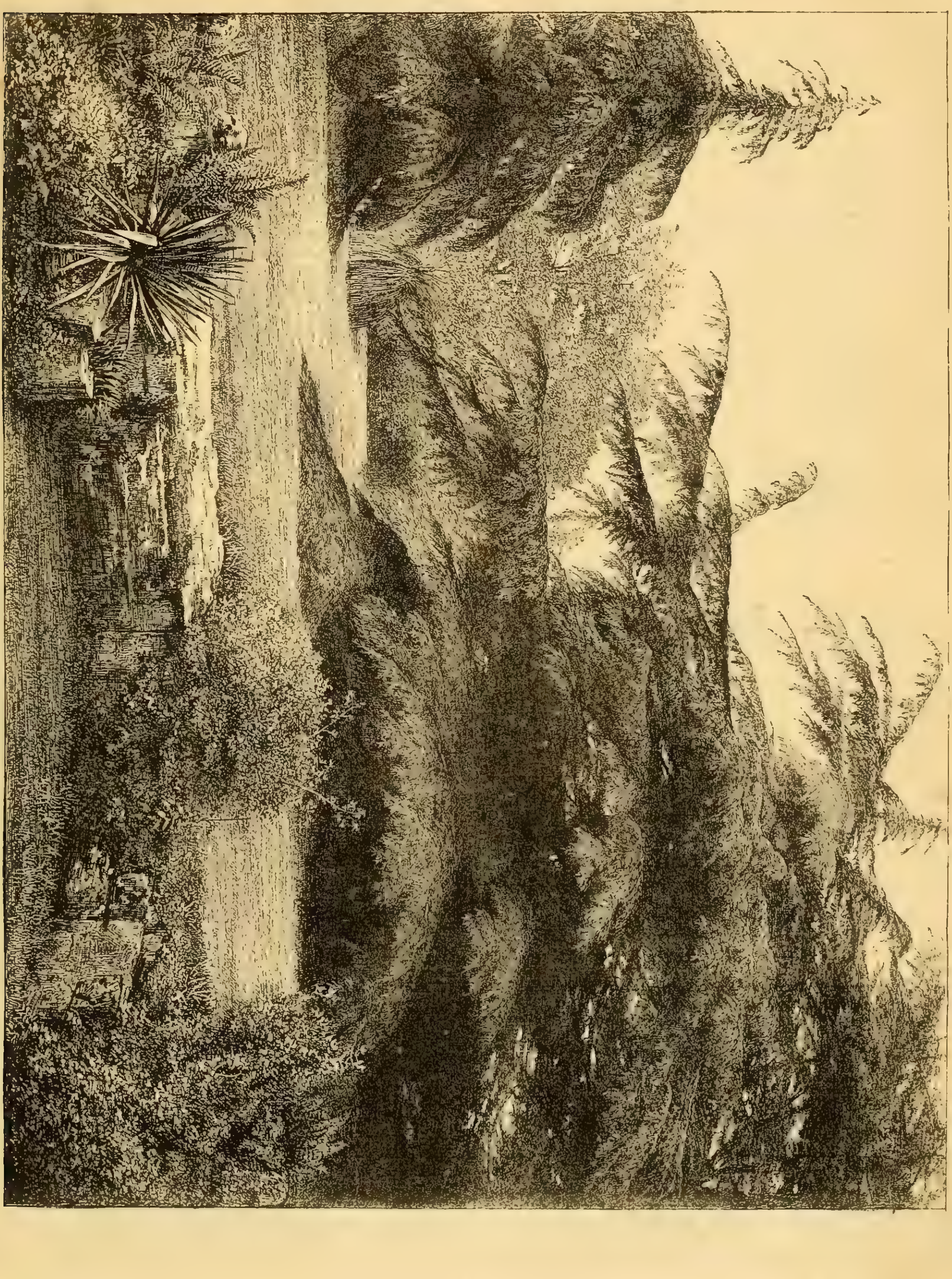
The cutting of underwood, if not already done, should be finished as soon as possible, after which, thinning the timber must be proceeded with, care being taken to mark all the inferior, unhealthy, or badly-shaped trees that are likely to interfere with the full development of the better ones that are intended to stand permanently. Continue to thin Fir and other plantations that are getting crowded, so as to give sufficient light and air to encourage a healthy growth. Any forest planting in contemplation or in progress should be commenced or pushed on with all available hands during favourable weather; in case of a heavy fall of snow or severe frost putting a stop to planting operations, the planters may be advantageously employed in cutting Ivy off trees, and to do this work effectually the roots ought to be grubbed out. Cutting and cleaving cordwood, and grubbing hedges or levelling banks, are operations that can be done when the ground is covered with snow. Young plantations and ornamental trees and shrubs should be gone over to see that no injury is done by ground game, and any plants that have been nibbled or barked should be "bushed" by tying Heath, Birch spray, or Fir boughs round the necks of the plants; this will be found a safeguard against further injury for two or three years; even if the plantations or specimen plants are protected by means of wire netting they will require attention to see that rabbits have not made inroads, as they frequently do during frost and snow, by scratching holes underneath the fence, and when pushed by hunger they frequently bite holes through wire netting. Nursery work, lifting and planting trees and shrubs, making and planting cuttings, digging ground that has been cleared of a crop, should now have attention.—George Berry, *Longleat.*

Mesembryanthemum cordifolium variegatum.—This makes a very good edging for warm conservatory stages during autumn and winter, and few plants look better than it does at this time of the year when associated with Alternantheras, Club Moss, &c They may be easily had, if, when propagating them in August, 48 instead of 32-sized pots are used. They should be grown until such time as they cover the pots all round, when they may be removed to the conservatory. When the proper time arrives they can be propagated for next season's flower garden decoration.—W. W., *Eaglehurst.*

THE GARDENS OF ENGLAND.

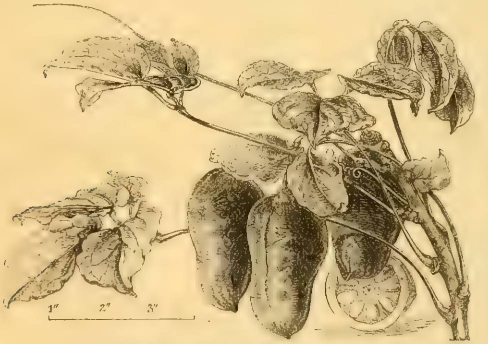
THE GARDENS AT BATTLE ABBEY.

Apart from the historical associations of this famous old place, it is of great interest to lovers of plants from the many noble specimens of hardy exotics that the gardens contain. Being distant only a few miles inland from the Sussex coast, the air is comparatively moist, a fact amply proved by the verdant covering of Moss and Fern upon every old stone wall, and the semi-epiphytal drapery of Polypodium with which the mossy branches of the Limes and other trees are in some places densely furnished. The climate is also comparatively mild during winter—indeed, Hastings, which is only about six miles distant, is known to be one of the mildest winter watering-places on the south-eastern coast; although, however, Battle possesses the advantages of a mild and moist climate, it is fully exposed to the gales which blow inland from the sea—often with great violence. Our remarks on this occasion will be mainly confined to examples of out-door vegetation, as an illustration of what may be done in hundreds of gardens elsewhere along our sheltered southern shores. All along the old guest-room wall every stately buttress is clothed with fine examples of the old China or Monthly Rose. At the time of our visit hundreds of buds were open, and in mild winters they continue flowering until January, or even longer. This fine old Rose and a more modern kind belonging to the Tea-scented group, viz., Gloire de Dijon, should occupy a place on every sunny wall, and, if possible, let the pure white Macartney Rose (R. bracteata) bear them company. Other Roses do well here on their own roots, and more especially Maréchal Niel, which Mr. Jack finds roots very freely, most of the plants here having been cuttings inserted at the base of the walls just where they were intended to remain. The common Oleander grows outside on this wall and flowers freely, all the protection it gets being a slight covering of Fir branches in frosty weather. The sweet-scented Verbena (Aloysia citriodora) is perfectly established here as a hardy wall shrub, and it attains a height of from 12 to 15 feet, its growth and foliage being of the most luxuriant description. This shrub is also hardy in other parts of England, and has no rival, at least as far as leaf-fragrance goes. The old wall on which these shrubs are trained is not by any means a dry one, nearly every stone being carpeted with Moss or Lichen, while the interstices are in some places completely monopolised by the common Hart's-tongue (Scolopendrium vulgare). The health and luxuriance of the Myrtles here are surprising, some of the specimens reaching a height of nearly 20 feet. In summer and autumn they are laden with flowers; even now they bear a large quantity of fruit, and in some cases fertile seeds. Eugenia Ugni is also quite hardy here, and, like the Myrtles, its leaves are even more fresh and attractive now than during the summer months. One of the most attractive of all winter-flowering shrubs now in bloom at Battle is the old Coronilla glauca, a bush a yard high, and as much through, planted against the walls of the mansion, but allowed its natural habit of growth—not trained or nailed in closely, as is too commonly the case. This plant is hardy in nearly all parts of the country, if planted in sheltered positions. The main point in planting this and other half-tender shrubs is to so arrange them that the winter sun does not shine directly upon them, for if this is the case, it does them more damage than severe frosts, as it thaws them too quickly. If, however, it is otherwise desirable that they should occupy a sunny corner, a slight protection of Fir or Spruce branches is amply sufficient to prevent any great damage, either from frost or rapid thawing in the sunshine. A very fine specimen of Garrya elliptica covers the wall over the hall door; it is fully 20 feet in height, feathered to the very base with fresh deep green leathery foliage, and, when covered with its elegantly drooping catkins, is a noble object. What a pity that this fine old plant is so seldom seen in our gardens, and when will some of our enterprising nurseryman bring us the female or seed-bearing plant, which, if less beautiful than the male form just alluded to, might aid us in raising new varieties, or in propagating the male form otherwise than by layers? It may not be generally known that the late M. Thuret, of Antibes, raised male and female seedlings from the female or seed-bearing G. Mac-



VIEW IN THE GARDENS AT BATTLE ABBEY.

Faydeni, fertilised with pollen of G. elliptica, and the hybrid form has been named G. Thureti. Fuchsia Riccartoni, of course, does well here; and, as a wall shrub, attains a height of from 10 to 20 feet, the stems looking somewhat like those of old Grape Vines. This is pre-eminently a coast plant, for it seems to do better when planted in rich soils, near the coast, than elsewhere; but its graceful habit entitles it to a place in every garden, either as a bush on the lawn, or as a wall shrub. One of the best of all the hardy Solanums is S. jasminiflorum, which does well at Battle as a climber on the walls. One specimen is fully 20 feet in height, and, during the autumn months, it flowers profusely, and only ceases to do so on the approach of severe frost. This plant does well even in London gardens, and is one of the most luxuriant and beautiful of all exotic plants. The Japanese Medlar or Loquat (Eriobotrya japonica) does remarkably well here, one specimen on the buttress of the old dormitory being fully 30 feet in height, and a mass of rugose glossy foliage. This is one of the noblest of all large-leaved shrubs; but here, on the Sussex coast, it is just a trifle too mild for this plant, as it makes a second growth annually, and this, of course, destroys all chance of flowers or fruit. Among other things, we must not forget the common Hydrangea (H. hortensis), which grows very luxuriantly here, and blooms profusely, reminding us what charming effects may be produced by the use of such grand hardy shrubs, associated with Fuchsias, Hibiscus, and others which flower in autumn in nearly all English gardens.

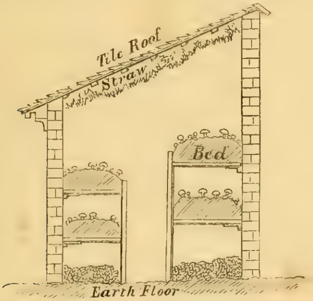


Stauntonia latifolia in fruit at Battle Abbey.

As a matter of course, it is no use trying to grow greenhouse plants in unsheltered or northern situations; but how many hundreds of beautiful gardens have we not, in Devon and Cornwall alone, in which many beautiful exotics succeed perfectly—to say nothing of those all along the south-eastern coast, and along the western shores of Ireland? What a charming variety of plants there is on the old walls at Battle, the sight of them, even in mid-winter, making one wish the culture of beautiful outdoor exotics was more general, especially where the soil and climate are in every way congenial. Two rather uncommon greenhouse or conservatory climbers grow remarkably well here, as outdoor wall shrubs, and at the time of our visit both were fruiting freely—these are Stauntonia latifolia and Physianthus albens. The first named is well worth growing as a fine foliaged plant, its glossy digitate leaves being of handsome outline and admirably adapted for associating with Camellias, Roses, Ethiopian Lilies, and other large flowers used for drawing-room vases. Our engraving, made from fresh specimens, shows the noble leafage and large pendent fruits of this fine half-tender plant although it is much reduced in size. This plant is a native of China, and some of its congeners furnish edible fruit. Much has been written of late concerning the fruiting of Physianthus albens. At Battle it flowers profusely all the summer and until late in the autumn months, in fact, until frost appears in earnest, and now in mid-winter the large conical, wrinkled, Stephanotis-like fruits hang among the leathery foliage. This plant is not unfrequently grown as a conservatory climber, its small white flowers being borne in the axils of glaucescent leaves. It belongs to the Asclepiads, a group of plants which are supposed to depend for fertilisation on insect agency, just as is the case with Stephanotis and Stapelias, so that its fruiting here in the open air is a point of additional interest, since it seems to imply that some of our native insects in looking after nectar at the base of the flower tubes, have in that act unconsciously fertilised the stigma. Clematis montana here on the old dormitory walls reaches a height of 20 or 30 feet, and flowers freely, while Photinia serrulata and Ladizabala biternata both grow freely at the base of the buttressed masonry. The yellow-flowered winter Jasmine (J. nudiflorum) here forms great masses on the house, and parts of the ruins are now covered with its golden flowers, while Ceanothus azureus flowered freely up to the late frosts and now bears quantities of good seed, numerous lovely rosy and blue varieties of Ceanothus have been raised in Continental gardens, where they are grafted on roots of the common kind and grown as decorative plants in pots, but perhaps some of these would also prove hardy in sheltered positions. C. azureus used to grow and flower very freely on the old aboretum wall at Chiswick and now does well in many London gardens.

The Pleasure Grounds.

The pleasure grounds at Battle are on an exposed slope facing seawards, the slope being so considerable as to necessitate terraces. The work of the gardener, however, is more apparent than that of the builder, nearly all the retaining walls being clothed with vegetation, and that of the choicest description. The lower terrace is fringed along the front by a Holly hedge fully 200 yards in length, and in an admirable state of preservation notwithstanding the fact that it was removed and re-planted in its present position during the hottest summer weather, the natural disadvantages of conducting such an extensive planting experiment being counterbalanced by judicious shading, syringing, and watering at the root. Some fine old pink or scarlet Thorns which have long occupied their present site were wisely preserved when the lower terrace was formed, and they now do much towards rendering this outer plateau one of the most beautiful spots in the garden during the spring and early summer months. The higher terrace is fringed with a hedge of Laurustinus, and sheltered by the walls of the guest room, the vegetation upon which has been alluded to above. The plateau on which the present mansion and the principal remains of the zealously-preserved old abbey stand stretches irregularly around in all directions from the house, and as we enter from the main entrance—a noble old gateway—the green lawn stretches away to the right, its surface unbroken by either shrubs or beds, and this broad expanse of lawn at once impresses one with the idea that the grounds are much more extensive than is really the case. One side of this lawn is sheltered by a tall belt of Laurel, Bay, and other dark foliaged evergreens, and from these rise the stately towers which once terminated the old reception chamber of the abbey, and which now add a dignity to the place which it would be beyond the power of the modern builder to impart; these once formed part of a superb pile, and were intended, doubtless, as look-out or watch-towers, from which the surrounding approaches could be seen for many miles, but are now tenanted by a colony of rock pigeons or owls. In front of the dark green belt of Laurel, which is fully 20 or 30 feet in height, are planted some large bushes of Aucuba japonica, about 8 feet high, and fully as much in diameter, and these clumps of golden-blotched foliage, as seen from a distance against the dark background, are very effective indeed. The flower garden is on the opposite side of the mansion, and is an oblong design of simple pattern, worked out in dwarf Box, and this, old fashioned though it be, is admirably in keeping with its surroundings of "ruined towers and frowning battlements." Our principal illustration represents the fringe of the rock garden, and one of three fine Cedars, the long lower branches of which sweep down to the lawn in a most graceful manner. These Cedars are memorial trees, planted by one of the former proprietors of Battle, little over sixty years ago, and yet, looking at their sturdy boles and ample branches, one would think them much older. Beside these are smaller specimens of the Himalayan Cedar (C. Deodara); and here also is a noble specimen of Thuja dolobrata, fully 8 feet high, with a broad spreading base. This is one of the most vigorous examples of this distinct Conifer which we have hitherto seen; and well deserves the place it here occupies. It is generally supposed that this Conifer will not bear removal; but this specimen has been recently transplanted by Mr. Jack, and certainly bears no traces of its having been injured by the operation. Other Conifers also grow well here, and a fine specimen of the common Larch, having a bole fully 5 feet in diameter at the base, is supposed to be one of the first specimens introduced to this country. The Pampas Grass, both male and female, grows most luxuriantly in the deep rich soil at Battle. The moist atmosphere appears to suit them thoroughly. The specimen seen in the distance in our illustration is a very fine one, the drooping leaves being 10 or 12 feet in length; and it now bears plumes 15 feet high. These, seen against the dark background formed by the Cedars, are very effective objects. The rock garden, part of which is illustrated in our principal engraving, occupies the crypt of the old chapel or High Altar, which, according to tradition, was erected on the spot where Harold's body was discovered after the battle of Hastings. This rockery is tastefully and irregularly formed of stones from the ruined Abbey, and is planted with Sedums, Sempervivums, and other low perennial vegetation; more stately forms, such as Yuccas, hardy Ferns, and graceful hardy Bamboos being added with good effect. Below the ground level, and surrounded, but not overshadowed, by trees, this rockery is moist, cool, and sheltered from high winds—just the place, in fact, to fringe with choice Alpines, or the more tender varieties of herbaceous plants. Camellias grow and flower well here planted outside, a whole avenue of them, 40 or 50 yards in length, being just now quite fresh and healthy, most of the specimens being 6 or 7 feet in height. In a private garden at Battle is one of the finest specimens of the double white Camellia we have ever seen in the open air. It is fully 12 or 14 feet in height, and as much in diameter—a healthy bushy well-furnished specimen, with glossy deep green leaves, and fresh young growth, well set with bloom buds. This flowers very freely in the spring, the only protection it receives being a thick mulching of leaves over the roots in winter. In the same garden, Daphne indica grows very freely, forming a low spreading evergreen shrub, fully 6 feet through; and this flowers very freely during the summer months.



Section of Mushroom-house at Battle Abbey.

Kitchen Garden and Fruit Houses.

The kitchen garden at Battle Abbey is an oblong plot of about 2¾ acres enclosed by walls which are well furnished with choice Pears, Plums, Cherries, Peaches, and other hardy fruits. A neat and useful range of fruit houses occupies part of one of the walls, and these are backed by potting sheds, fruit room, Grape room, Mushroom-house, soil yard, and other offices. The Vineries and Peach-houses are well stocked with healthy and fruitful Vines and other fruit trees, some very fine Peaches, Nectarines, and Grapes being here produced; indeed, Mr. Jack has long been known as a successful exhibitor of choice fruits. In one of the Vineries our attention was drawn to an old Vine of Royal Muscadine which has been grafted with Cannon Hall Muscat and Muscat of Alexandria, both of which Mr. Jack finds to be much improved by the use of this free-setting variety as a stock. We should like to hear if any of our readers have tried this variety as a stock for Muscats. Apricots do not grow well here, fine healthy trees going off suddenly in a year or two owing to the iron in the soil. Some fine specimens of bush or low-trained candelabra-shaped Apple trees fringe the principal walks in the kitchen garden, the branches being pruned or spurred in close so as to make them as sturdy as possible, this being requisite to prevent the rough sea winds damaging the fruit. We illustrate here the Mushroom-house, respecting which Mr. Jack gave us some useful information, and which a glance at our illustration will explain. The house, as shown, is a lean-to with an earthen floor and tiled roof, the latter originally having been "drawn" underneath, *i.e.*, plastered, and the culture of Mushrooms under these circumstances was found a difficult matter as the condensation of moisture on the cold plaster ceiling above caused the young Mushrooms to damp off. Mr. Jack at once hit on the plan of removing the plaster ceiling, and substituting for it a layer of straw to equalise the temperature as much as possible, and this arrangement has succeeded beyond all expectation, Mushrooms being now obtained in abundance with but little extra trouble. A new room for keeping Grapes in bottles after they have been cut from the Vines has just been erected, and this was well stocked with large-berried clusters of Muscats, Barbarossa, or Gros Guillaume, and Black Alicante, all in excellent preservation after having been cut some six weeks or two months. Wide mouthed bottles are used, a slit being made in the side of the cork so as to admit the base of the lateral being pushed through into the water, the orifice being then rendered air-tight with sealing wax, and, so far, this system is found to answer tolerably well. F. W. B.

Arresting Moving Sands.—Once aware of the fact that certain plants throve in the sands of downs, Bremontier saw that they alone were capable of staying their progress and consolidating them. The grand object was to get plants to grow in moving sand, and to protect them from the violent winds which blow off the ocean until their roots had got firm hold of the soil. Downs do not bound the ocean like beaches. From the base of the first hillocks to the line which marks the extreme height of spring-tides, there is always a level over which the sand sweeps without pausing. It was upon this level space that Bremontier sowed his first belt of Pine and Furze seeds, sheltering it by means of green branches, fixed by forked pegs to the ground, and in such a way that the wind should have least hold upon them, viz., by turning the lopped extremities towards the wind. Experience has shown that by proceeding thus Fir and Furze seeds not only germinate, but that the young plants grow with such rapidity that before long they form a thick belt a yard and more in height. Success is now certain. The plantation, so far advanced, arrests the sand as it comes from the bed of the sea, and forms an effectual barrier to the other belts that are made to succeed it towards the interior. When the trees are five or six years of age a new plantation is made contiguous to the first and more inland, from 200 to 300 feet in breadth; and so the process is carried on until the summits of the hillocks are gradually attained. It was by proceeding in this way that Bremontier succeeded in covering the barren sands of the Arrachon basin with useful trees. Begun in 1787, the plantations in 1809 covered a surface of between 9,000 and 10,000 square acres. The success of these plantations surpassed all expectation; in sixteen years the Pine trees were from 35 to 40 feet in height. Nor was the growth of the Furze, of the Oak, of the Cork, of the Willow, less rapid. Bremontier showed for the first time in the annals of human industry, that movable sands might not only be stayed in their desolating course, but actually rendered a source of wealth.—Boussingault.

Workmen.—Supposing the captain of a frigate saw it right, or were by any chance obliged, to place his own son in the position of a common sailor; as he would then treat his son, he is bound always to treat those men under him. So, also, supposing the master of a manufactory saw it right, or by any chance obliged, to place his own son in the position of an ordinary workman; as he would then treat his son, he is bound always to treat every one of his men. This is the only effective, true, or practicable rule which can be given on this point of political economy.—J. Ruskin.

THE GARDEN IN THE HOUSE.

CHURCH AND PUBLIC ROOM DECORATION.

Having made, I may say, miles of wreathing allow me to state that my method of construction differs somewhat from that of Miss Hassard. In my case no centre cord is employed, but only the string used in making the wreath. The advantage of this plan is that there is no displacement of the twigs of evergreen of which it is made, which is always the case when another string has to bear the weight. This will be better understood when the mode of making such wreaths is explained. With us the evergreen that forms the prettiest wreath for hanging in such a position that all its sides can be seen is Ivy, the short tufty pieces, which are often laden with berries, alone being used. I prefer this Ivy to anything else on account of the under sides of its leaves looking almost as well as the upper surface, and for a thick wreath it is well fitted, while for a slender one tree Box is the most graceful—decidedly more so than Cypress, Yew, or anything else of the same description that we have used. I am speaking, it must be recollected, of wreaths which are suspended in conspicuous situations where all their sides can be seen. Against a wall or surrounding a pillar I am not sure that other materials might not do as well, but I believe I am right in selecting the two evergreens mentioned, for making a light festooning for open work. A very pretty festoon is also made out of some of the small leaved Phillyreas; but perhaps the plants that furnish twigs from which the quickest lengths may be made, and that look well at the same time, are the Sweet Bay, Alaternus, and, finally, the Laurustinus. Portugal Laurel is more suited for a one-sided wreath, and common Laurel can only be used for that purpose, but we have also used Evergreen Oak, Yew, and Holly. The latter, if grown at all robustly, is rather stubborn and intractable, and its shoots require now and then to be cut almost through (or crippled as we call it) to induce them to conform to the line required. Holly is also unpleasant to handle, so that, unless for special purposes, we prefer using something else; indeed, most evergreens having plenty of small or medium sized leaves answer very well; the larger leaved kinds get flabby too soon, the Aucuba being too large for most kinds of work, for which it would otherwise be adapted. Nothing is really neater than the Euonymus, plain green or golden; the common Daphne Laureola or pontica looks better in a growing state than when made into wreaths, its foliage being too much clustered at the points and the stem indifferently clothed, a remark which also applies to the larger leaved Berberis, but B. Darwinii when in flower makes a handsome wreath, and I have seen a very neat one made of Myrtle. The rather scarce Griselinia litoralis might be advantageously employed for this purpose could it only be obtained in abundance; and I have also found that the Majorca Box is thoroughly suitable, but I have never, as yet, seen any one Cotoneaster that could be recommended for the purpose.

While on this head I may mention that other plants as well as evergreens may be formed into festooning. We have, when the season admitted of it, made many yards of Rhododendron festoons, securing the flower-heads with a few inches of stalk alone, the young growths on all kinds of evergreens at the time precluding their being used with the flowers. About the same time the Deutzia gracilis forms an excellent festoon, followed later on by the double-flowered Deutzia, which, being in spikes about the length of one's arm, forms a festoon with the least trouble of anything, unless it be Fuchsias of the hardy class, which are also available, and look well. In fact, most flowers may be used that can be had in abundance, and in spikes rather than corymbs. Sprigs of Oak, with the dead leaves thickly adhering to them, also look well in winter, and can be worked into the same form and size as evergreens. Beech, I dare say, would also answer; but I have not tried it. Now and then, however, we have used strings of berried plants; and one that works in as well as any with which I am acquainted, when assisted with evergreens, is the Privet, with its clusters of jet black berries. In like manner, other berried plants, such as the Mountain Ash and all the Cratægus tribe, might, no doubt, help to make a good display; but, not having been called on to furnish such things when they were in season, I cannot speak from personal experience. Enough, however, has been said to show that a variety of materials exist for such work.

Having a quantity of the twigs ready, which may be from 12 to 18 inches in length, a heap of them is laid on a table or bench, and with string that most people would call very small, a loop is made, and fastened to some hook at or near the end of the table. One or two pieces of evergreen are then held in the left hand, while, with the other, a sort of hitch knot is made round the evergreens, some 2 or 3 inches from their points, which we shall say is the beginning. Evergreen twigs are added near the butt ends of those already placed, and, the string being carried down in the midst of them, is made to form another hitch knot round both the tips of the new shoots and the butts of the others, a process which is continued on until a convenient length has been made, which may be about 10 or 12 feet. For convenience, however, the string is seldom more than 6 feet long; otherwise it is liable to get in the way, and, being very small, is easily knotted. Care, of course, must be taken not to confine any more of the leaves than can be helped; and a little practice will enable anyone to judge how much of the tip of each shoot should be left beyond the first tie, the shoots being fastened at each end, and a rather more secure knot being made at the end of all, to prevent it coming undone when moved, as these festoons are, where amateur decorators have their handling, sometimes subject to rough treatment, which, however, they usually bear without injury. When taken to the place where they are to be hung up, they can be joined together, without the joint being detected, by merely tying the strings at each end, taking care that the direction of the foliage is continuous if the decoration is to be carried round the room, or in one direction. It can be looped up at any place required; and, the string forming it being very slender, it can either be suspended to a tack or tent-hook, or the festoon can be twisted round a pillar; or, if hung in front of the upright mullion of a church window, will hang down in its place without much trouble. If against a picture or looking-glass frame, it is equally available. In fact, wreaths of this kind may be made to do service in various ways where no nails are to be driven. I have even known the weight of such festoons borne by an ordinary pin, forced into some penetrable portion of the moulding, without being seen; while the indented work that frequently surmounts the moulded work of a screen, or other portions of church architecture, will frequently admit of a common cork being fixed between the notches, which makes a most excellent support, while, in many places, a small tent-hook may be inserted in the recesses of a moulding, or in other places where it can do no harm—indeed, it is not bad practice in public rooms, that are frequently decorated, to fix a series of hooks or staples, which prevent further damage from nails. Referring to Miss Hassard's remarks in reference to carrying wreaths round pillars, I may mention that it is better to have two or more such wreaths than one, the inclination being less, and, I think, the effect better. I have seen as many as four such wreaths twined round a very stout pillar, a string being tied tightly round the capital just above the narrow moulding so as to keep them up, the wreaths commencing there and terminating in a similar way at the bottom. A thick wreath is then bound round both top and bottom, and it much enlivens the beauty of the spiral wreaths if they consist of two different kinds of evergreens—say one of them Cypress, and the other of a larger-leaved plant, such as Sweet Bay or Alaternus, or, if need be, Holly. I would hardly recommend that more than two kinds be used, unless there are three wreaths, which cannot be worked in so well, but, if need be, they might be of different kinds. I have never decorated the span of an arch, and have to thank Miss Hassard for the suggestion of thin boards, which, I can easily imagine, will do very well where the arch is not too large, and all the better if the arch is a Gothic one; but I confess to not having succeeded very well in trying to introduce a band of evergreens in the recess formed by the moulding of the arch, by using an iron rod on the principle recommended by Miss Hassard. In my case the result was not satisfactory, although I dare say the disinclination of the rod to assume the proper curve might have been overcome had more time and patience been bestowed on it.

A Kentish Gardener.

THE INDOOR GARDEN.

FORCING DECIDUOUS PLANTS IN SHEDS.

Such plants as hardy Azaleas, Lilacs, Thorns, Weigelas, Deutzias, and numerous other plants of a similar nature, are in great request, in most gardens, for forcing purposes. Much valuable room under glass, that might be utilised at this season of the year, is needlessly taken up to accommodate these plants, when they can just as easily, and with equal certainty, be brought on in a Mushroom-house, or in any closely ceiled shed that might be made to answer the same purpose. All that would be necessary in the latter case is a heap of fresh gathered leaves, tan, or any other sweet fermenting material that would afford a slight bottom-heat, and keep up the temperature to between 50° or 60°. In a place of this kind it is surprising what a slight bed of fermenting material will accomplish in keeping up a regular heat, as, with the walls, roof, and ceiling of the place being almost air-tight, it is little affected by the cold from without, and a minimum amount of heating material is here quite sufficient to maintain a temperature sufficiently high to force large numbers of these plants. It becomes a question whether such structures would not be worth the attention of those who grow largely for market purposes, as they would be much cheaper than glass, require but little heating, and, after the season for forcing is over, might be used for various other purposes. Many other things, such as bulbs, Lily of the Valley, Dielytras, Spiræas, &c., might be forwarded a stage in such a position before light became necessary, after which they could be removed to glass structures. During the earlier stages of forcing the class of plants here referred to, light is not at all necessary, and it may, in the case of deciduous subjects at first starting be even advantageously dispensed with. It is a well-known fact that, however moist the atmosphere of a glass structure may be made, it quickly condenses on the glass, or is driven out through the laps, but in a dark close structure, such as a Mushroom-house or shed, moisture is held in suspension, and does not require very frequent renewal. Such an atmosphere, with the temperature scarcely varying a single degree either by day or night, is just the place for swelling up buds, and forwarding deciduous and other plants during the earlier stages of forcing. I have for years used a division of our Mushroom-house for such purposes, and have found it a most valuable auxiliary to the other forcing houses in bringing on plants for furnishing the conservatory and supplying cut flowers. The part of the Mushroom-house I use has a small amount of light admitted by having a pane of rough plate glass in each end wall, and I have found such thick-leaved shrubs as Rhododendrons stand here for several weeks at a time without suffering the least injury. Hardy Azaleas, Lilacs, &c., being without leaves, may be kept in the dark till the buds begin to burst, when light becomes necessary to give the natural colour to the flowers. The plan is one that I can strongly recommend. J. Sheppard.

Woolverstone.

STOVE SCUTELLARIAS.

One only acquainted with our little native Skullcaps (Scutellaria) or the hardy border species, would scarcely expect that they had such magnificent relatives as are to be found in tropical America. Of the tropical species introduced, the most beautiful and desirable are Scutellaria Costa Ricana, S. Mocciniana, and for sake of contrast the sulphur-coloured S. aurata. The first named carries, even on plants only a few inches high, beautiful Aphelandra-like heads of brilliant flowers, each flower from 2 to 3 inches long, the tubes of richest orange-scarlet, and the lips deep golden-yellow, showing a striking contrast. This is, perhaps, the most useful one of the three; for it is of the easiest culture, and may, with a little management, be had in flower at all seasons. S. Mocciniana is a remarkably showy plant, bearing at the extremity of its branchlets brilliant tufts of deep scarlet flowers, which when seen for the first time, or indeed at any time, never fail to arrest marked attention. This species has, however, somehow got a bad name among plantsmen as being of a somewhat straggling habit, difficult to grow or to make a presentable specimen of. This we believe is rather to be attributed to the treatment it is subjected to at an early stage than to any inherent bad quality in the plant itself. Young plants should have moderately warm quarters, be placed near the glass, where they will have plenty of light and sunshine, and abundance of air. Treated in this way, they will, even in pots of smallest size, show abundance of flower, and form charming objects for making gay the plant house shelf or the boudoir or drawing-room table. The treatment above mentioned for the supposed intractable S. Mocciniana is equally applicable to the not less beautiful Costa Rican and Brazilian species named above. As regards soil, a mixture of sandy heath mould and fibry loam seems to meet all the requirements, provided the drainage be properly cared for. S. Mocciniana, if properly worked up into a good sized specimen, would, we apprehend, make a most telling exhibition plant. Be this as it may, there can be no question that few plants will be found more useful for making the plant stove and house gay at almost all seasons than these tropical Scutellarias, for by putting in cuttings at intervals there is scarcely a month of the year in which they may not be had in flower.—"Irish Farmer's Gazette."

Lady's-slippers at Kew.—In the tropical Orchid-house, at Kew, the following Cypripediums are now in flower, viz., the rosy-flowered C. Sedeni, one of Messrs. Veitch's latest hybrids; C. Roezli, which, in habit, closely resembles C. longifolium, but its petals are of a delicate rosy-lilac colour, not green margined with brown; C. insigne and C. insigne Maulei, the latter an attractive form of insigne, the upper half of the dorsal sepal being pure white spotted with purple; C. Stonei, one of the best of all tropical Lady's-slippers, having yellow and pink flowers, the sepals and petals being heavily blotched with crimson-purple; C. concolor, a kind bearing pale yellow flowers dotted with purple; in a pan, C. venustum pardinum is also blooming freely, some of its scapes bearing two flowers each.—B.

Begonia Manicata.—This well known Begonia is, from its many points of excellence, likely to survive many newer varieties, for not only is it one of the finest and most graceful of flowering Begonias, but its foliage is quite equal to many of these varieties grown for their foliage alone. It is a plant eminently fitted for amateur cultivators, as it succeeds well in a warm room for a long period. I have seen excellent specimens grown entirely in windows, but they are much benefited by a glass roof, and rather more heat while making their growth after flowering. They may be had in bloom by Christmas if a forcing pit is available, and a succession may be kept up for a long period by keeping those at rest and quite cool. Even without the addition of their blossoms, they form very excellent vase plants, and may occupy a somewhat dark position without injury, for a longer period than almost any other plant. When in full bloom they form quite a little cloud of delicately tinted flowers. Strong cuttings or ends of flowering shoots strike freely in spring, in a brisk heat, and by placing three in a pot, good flowering plants may be obtained the following season. If grown on a light rich compost, these will make robust specimens the second year, and by shortening back the flowering shoots, and top-dressing or re-potting as required, they may be kept in good condition for many years. They are not subject to any insect attacks, and this is an advantage that amateurs should not overlook.—James Groom, *Henham.*

Aponogeton distachyon not necessarily an Aquatic.—It may be good news for many of your readers who are not possessed of ponds or tanks suitable for growing this deliciously sweet-scented plant, recently described and figured in The Garden, that water is by no means necessary in which to grow and flower it successfully. When visiting the experimental department of the Jardine des Plantes at Paris recently, I was shown, in one of the greenhouses, by M. Carrière, a pot containing a plant of the Aponogeton covered with its curious pure white distichous flowers, but destitute of foliage, and showing a large number of flower buds protruding from the crown of the plant which promised a long succession of bloom. The house was quite filled with the delicate perfume exhaled from the numerous blooms—a perfume which much resembles that of the winter Heliotrope (Tussilago fragrans). M. Carrière informed me that he grew the plant in rough lumps of peat mould, mingled with potsherds, which were also scattered thickly on the surface of the pot. I may add that I have never seen half so many blooms open at one and the same time on any plant growing in the water as were in full perfection on this potted plant. A more charming or sweet-scented plant for window or room culture could not well be discovered than the Aponogeton distachyon thus grown in a pot.—W. E. G.

NOTES AND QUESTIONS ON THE INDOOR GARDEN.

Solanum hybridum compactum.—Allow me to add this Solanum to "B.'s" list of berry-bearing plants (p. 517), as it is one of the most effective scarlet-berried Solanums with which I am acquainted. In habit it is not unlike S. pseudo capsicum, but it is more compact, and bears large berries in clusters of from five to six. The treatment described under the head of Solanums in the article just referred to, suits this variety admirably.—W. W., *Eaglehurst.*

Goniophlebium subauriculatum for the House and Conservatory.—This Fern, when well-grown, bears fronds from 2 to 8 feet in length, and for house decoration answers admirably. Single plants of it placed on brackets or in vases produce a fine effect. It is also a noble subject to place round groups of fine leaved and large flowering plants and for large baskets.—Richard Nisbet, *Aswarby Park.*

TREES AND SHRUBS.

SEA-SIDE VEGETATION.

Mr. Cornhill's article on sea-side vegetation at Ramsgate (p. 511) tempts me to send a few additional remarks about the vegetation on the sea-coast of Yorkshire, where the climate is certainly colder, in summer at any rate; and the soil a cold clay, with glacial drift often appearing. These causes effect an almost total change in the plants and trees that thrive. For example, deciduous trees flourish, to the exclusion of evergreens; Elms, Sycamores, Turkey Oaks, Laburnums, and Service trees especially, flourish close to the sea; while the only good-sized evergreen shrubs that will, in an ordinary winter, stand the direct blasts of the sea, are Aucubas, and smoothed-leaved Hollies, particularly the Minorca Holly. Bays, Laurustinus, Euonymus, Ilex, and Escallonias only thrive in sunny and sheltered situations, where sometimes they do attain a considerable size; but there is one shrub that has proved itself most hardy, even in very exposed situations, provided it is not drawn up by the shade of trees in summer, which is the shrubby Veronica Blue Gem, sent out some years ago, I believe, by Henderson. It is of a sturdy, close-growing habit, quite unlike Andersoni, or the Lindleyana varieties; and is constant and most profusely covered with its short bright porcelain blue spikes of flower, which, even in winter, rarely fail to expand. Last winter, this variety survived a frost of unparalleled severity (18°) unprotected, excepting by the snow, while all other varieties were killed unless carefully protected. There is, however, one Conifer I would suggest as thriving here wherever at all sheltered, namely, Cupressus macrocarpa, a true sea-side Conifer, and which in this neighbourhood has in ten years reached 35 feet in height in a few instances, and has never been touched by frost or sea wind. This surely would help to diversify the Ramsgate squares, unless there is too much smoke, as it is well known that it thrives on the chalk, and prefers limestone to any other formation, I believe. Weeping Elms and Ashes are here even hardier than their prototypes, and the Weeping Ash would no doubt thrive where there is any soil to speak of! While on this topic, Yuccas and Tritomas (especially the latest blooming varieties) must not be omitted, flowering as they do even in the present season up to Christmas, in spite of bitter east winds that have in some places battered the Ivy leaves to a pulp. Of frost, as yet we have scarcely had a degree, while in the south there has been apparently hard frost. A bank of Veronica Blue Gem and Escallonia macrantha, with the Jasminum nudiflorum trailing about, sheltered by a few plants of Atriplex Halimus and Fuchsia Riccartoni, makes a most beautiful object quite near the sea, and is a combination I should recommend to all sea-side planters for winter or summer; it is needless to say the Atriplex and Fuchsia require frequent pruning. E. H. W.

COTONEASTERS.

There are few hardy plants more ornamental at the present time than the various forms of Cotoneaster; of these C. microphylla is the most useful. It is evergreen, and early in summer becomes completely clothed with white blossoms, whilst in autumn and throughout the winter it is loaded with brilliant red berries. Its habit is naturally a creeping one, but it may be trained into the form of a bush if well supported until its wood becomes strong. Hanging over the ledges or rambling into the fissures and recesses of rock, the effect it produces is a charming one. It is a plant that may be grown extensively in either a wild or a highly-dressed garden, and it bears clipping well and may be cut into any form. Perhaps it cannot be put to a more appropriate purpose than for dressing bare walls, when it may either be planted at the base of the wall and trained upwards, or at the top and allowed to hang down. Its growth is rapid, and at no time does it form such a heavy covering as Ivy. C. Simonsii and C. affinis are deciduous; the former, if allowed to grow, makes a very fine bush, and may be used with good effect about shrubberies. As a standard, with a 3 or 4 feet stem and bushy head, it has a very fine appearance. Its flowers are like those of C. microphylla, but the berries are twice the size of that variety. Before the leaves drop they assume rich autumnal tints, and in the winter, when they have fallen, the appearance of the berries, where they have not been eaten up by birds, is very beautiful. This variety may be trained against a wall, but for this purpose it is not so valuable, as it does not make an evergreen covering. The shoots, when the plant is thus used, are generally inclined to grow outwards, and require to be carefully nailed and trained until the desired space is covered, when the young wood may be kept trim by annual clipping. Some splendid wall specimens of this variety may be seen at Abbotsford. C. tomentosa somewhat resembles affinis in having whitish woolly leaves; and C. thymifolia has, as its name indicates, pretty Thyme-like foliage. All three are of a scandent habit, but none of them are so useful as microphylla and Simonsii. Cotoneasters are not particular as to soil or situation; they thrive luxuriantly in any common garden soil or site. C. microphylla grows well in what is little more than sandstone chippings; but, in specially preparing soil for them, the mixture should consist of rough peat and loam. The deciduous varieties should be planted after the leaves are shed; the evergreen kinds succeed best if moved when growth begins in spring. All the varieties may be increased either from seed or cuttings, and those growing in a procumbent position are readily multiplied by layering the branches.

J. Muir.

SHALLOW v. DEEP PLANTING.

More failures occur through deep planting than from any other cause, and yet it is far wiser to err on the right side and plant too shallow, than too deep, for in the former case the plant can assist itself; in the latter it is helpless. The roots of plants, as well as the parts above ground, want air and warmth, and if properly accommodated, will soon adapt themselves to the place in which they are to grow. If the surface soil be naturally dry, the roots will run down after moisture, and if it be wet, they will spread near the top, but, in no case, can a tree, or plant, except such as strike root at every joint, flourish if the collar be much lower than the surface. In planting small trees or shrubs, over which the wind has no power, there is no excuse for deep planting, not even the plea of saving trouble, yet we often meet with even small shrubs planted far too deep. Many practise deep planting because they imagine it saves trouble and time in staking the trees, to secure them from the effects of high winds, and so to remedy this, they plant them down low enough to tread them firm, and while they thus save the trouble of supports, incur risk of failure, and the certainty of damage, for when a plant or a tree is not of a nature to strike out roots at a proper distance from the surface, it cannot flourish; it may exist for a time, but eventually will die. On the other hand if a plant be merely held upright on the surface, and its roots are spread round it, and a few inches of soil put over them, they have power to strike down, and this they will do to the necessary distance to afford support. Of course, all trees over a certain height require to be made firm by staking, or some other method, to secure them from the effects of high winds; otherwise much injury frequently occurs. Hundreds of persons have to complain of the effects of deep planting in the frequent failure of their trees and shrubs. Their fruit trees do not bear, everything seems to go wrong with them; whilst they remain in ignorance of the real cause, which, in many cases, is deep planting. Now, although we may fearlessly assert that thousands of trees and shrubs are annually sacrificed from this cause, more especially where planting is carried on by large contracts, there are many losses occasioned by gross carelessness of another kind, as, for example, taking up the plant badly, chopping off the extremities of the roots, allowing them to dry after they are taken up and before re-planting, neglecting to tread the earth firm, and pressing it in between all the roots; or allowing the wind to move them backwards and forwards, till every fibre is disturbed. Deep planting, however, is the most prolific source of damage; and this is to be seen most conspicuously in fruit trees. When such trees exist, without thriving or making healthy growth, they should be examined at the roots; for it is quite certain there is something wrong. Prune the roots, cut in the head, re-plant your tree shallow in good soil; and there is every reason to hope that a change for the better will take place. In planting, I would direct attention to the following:—On no account plant anything deeper in the earth than it has been before; let the collar of the root be level with the surface of the ground, or, if in wet situations, above it. If the roots be spreading, loosen the earth, spread the roots round the stem, throw from round the spot enough of the best soil to sustain them, and heap it up round the stem, so as to be just even with the collar, which is, in all well-grown nursery plants, the mark which shows the depth at which the tree stood before. Staking, in the case of tall trees and plants, I have referred to above. Be just as particular with small plants, which, if planted at a right depth, instead of having to struggle against disadvantages until the roots accommodate themselves to the ground, will at once start into healthy growth.

Rabley Nursery, Herts. EDWARD BENNETT.

MAHONIA REPENS AS AN EDGING PLANT.

As a permanent edging, from 1 to 2 feet in width, to beds or borders of shrubs, either in place of a Grass verge or margin; or just inside the turf when turf is used, this plant may be effectively employed. Two or three year seedlings, planted in two or more lines 6 inches apart, will, with a little attention and management, make an edging superior to Ivy and most other materials commonly employed. Although not at all particular as to soil, like everything else, it does best when well-treated; therefore the ground should be trenched up and well prepared some time before planting. The plants may be planted deeper than is desirable with most hard-wooded plants, as it will soon strike root from the buried portions of the stems. It will bear trimming in with the shears, but it is far better to do the necessary pruning with the knife, as the leaves that remain are left intact, and will not present a ragged appearance as when the shears are used. It may be kept for years in a dwarf compact condition, by cutting well back every spring after flowering, and pinching out the point of a shoot occasionally during the summer. Of course, this close cutting back would prevent its fruiting; but, although this might in one respect be a loss, in others it would be a gain, as a heavy crop of fruit has a tendency to exhaust the plants, and might cause them ultimately to assume a ragged outline, which, in the case of a verge or edging of this kind, would not be desirable. Although I have only spoken of this plant as useful for verges or edgings to shrubberies, it might also, now that the advantages of introducing more variety, of a less ephemeral nature, into the flower garden is beginning to be recognised, be used as edgings next the Grass, in either a straight or any other outline. If this and other plants of a kindred character were more used, there would not be such a dreary blank when the frost came; and with a few additions from the reserve garden of spiral-growing plants, with bulbs and annuals, a very respectable winter display might be got together with little expense. But when nothing but tender plants are used for bedding, and these have to be entirely replaced, any attempt at winter or spring gardening becomes expensive.

E. HOBDAY.

Weeping Trees.—The association of the common Weeping Willow with water leads people to think that it will not succeed elsewhere; but there are few spots, even away from water, in which it will not thrive, if the soil be deep. I have seen really grand specimens of it growing on lawns. Scarcely less beautiful is the Weeping Birch; for, although its spray is not so long as that of the Willow, yet, owing to the tree being more lofty, it is nearly equally effective. Not so graceful, perhaps, as either of these, but a better arbour tree, is the Weeping Ash. Owing to its extreme pendulous habit, it is necessary that it should be worked on very tall stocks, as, if height is not secured at first, it cannot be obtained afterwards. The Weeping Ash should be planted in quiet secluded spots, where, when fully grown, it may form a pleasant retreat during sunny days. It will be found that a tree, with a stem considerably bent or inclined at the top, will form the most convenient arbour tree, as the position of the stem will then be at one side, instead of in the centre.—A. D.

The Best Hydrangea for Shrubbery Borders.—Hydrangea paniculata is destined to become as plentiful in our shrubberies as the Lilac. It is quite as hardy, far more showy, and lasts much longer than the Lilac, but it lacks the sweet scent of that well-known plant. It is the best of the now numerous family of Hydrangeas. Planted on an ornamental border in a long line here are various Hydrangeas, consisting of varieties of H. japonica, hortensis, and Otaksa; but the H. paniculata quite eclipses them all. One plant of it, which three years ago was put out of a 4-inch pot, is now quite 4 feet in height, and as much in diameter. Last summer it bore twenty-eight fine spikes of bloom, varying from 6 to 18 inches in length, according to the strength of the wood, the largest spikes being on the top shoots. The soil in which it grows is a moist, stiff loam (the natural soil of the site), and it received no artificial improvement. The plant seems to want abundance of moisture at the root, in hot weather, to enable it to produce its gigantic trusses of bloom. H. Otaksa ranks next as regards showiness, and it is dwarfer in habit than the old hortensis. Its foliage is much the same in shape as that of hortensis or japonica, but a little more pointed, and more glossy and smooth. I do not consider japonica worth growing, as compared with Otaksa, the trusses of which often attain a diameter of 12 inches. H. japonica rosea is a useful plant in pot culture, and the dwarf H. stellata is a little gem for forcing in spring, and possibly will prove hardy and useful in shrubbery borders.—W. D. C., *Dorset.*

Coronilla glauca.—This is much hardier than it is often supposed to be, and will stand out through the winter in the south and west. I have known it to winter safely in a sheltered spot in the neighbourhood of Bath, and to flower quite late in the year. In this place, on the southern coast, some plants of it remained out during the last three winters on a south border, without any protection whatever. They have been covered with bloom for more than two months. I cut from them for decoration up till the 1st of December, when the frost disfigured them to some extent. Milder days, however, are now improving them, and they begin to look well again.—JOHN CROOK, *Wareham.*

Leaf-pictures in Autumn.—The common Sumach (Rhus typhina), often seen in our gardens, but rarely valued and used as it deserves, is a tree much valued in America and Canada for the brilliancy assumed by its leaves in autumn. From recent observations of this tree in Surrey, even after the autumn cold rains, I can say that I have never seen more brilliant leaves on the tree in America or Canada than it bears with us. This is also true of the Virginian Creeper and other American trees. The beauty of our own native trees in autumn being also of a very high order, one is led to ask —why do we not plant with a view of producing pictures of foliage in the autumn in our parks and gardens?—W. R.

Habrothamnus elegans Hardy.—In the spring of 1874 I planted this close to the base of a south wall, where it bloomed during the summer. Having other plants of the same kind in the greenhouse, I did not care to take it up again; it had no protection through the winter, and was killed to the ground by frost; but when warm weather returned in spring, young shoots pushed strongly from the root. This summer it has grown quite out of character, its shoots measuring nearly 7 feet in length, with a circumference at the base of 2½ inches. The leaves have been 8 inches long and 3¾ inches broad. This season I intend to protect it, in order to induce it to make earlier growth, which, I think, will cause it to bloom more freely, it being rather a novelty in the open ground.—W. DIVERS, *Wierton, Maidstone.*

Brilliant Foliage in Streets.—In the village of Union Springs, N. Y., a tree-planting society was formed many years ago, and several hundred trees of the Sugar and Red Maples were planted along the different streets. Nearly every autumn these make a most gorgeous display of crimson, scarlet, pink, and orange, in an almost endless number of shades and different modes of blending. The absence of frost till late in autumn, owing to the proximity of Cayuga Lake, increases the effect. There are two or three trees of surpassing splendour, which maintain this distinction every year. Why would it not be as desirable to give a brilliant termination to the foliage of the season, as to plant for the two or three days of the blooming season in spring?—"Cultivator."

The Lapageria out-of-doors in Cornwall.—The Rev. T. L. Boscawen states, in the "Gardeners' Magazine," that he has a specimen of Lapageria 20 feet high now (November 2nd) in full blossom, planted against his house, in a corner facing north-west. "I feel," he says, "sure that this lovely climber will be found perfectly hardy elsewhere, if grown against a house, not a wall. It should be planted on the north side in a bed of bog-earth, with good drainage. I send you a blossom from the plant, that you may see for yourself that it is uninjured, in spite of the cold wet weather we have had for the last month."

NOTES AND QUESTIONS ON TREES AND SHRUBS.

Chimonanthus fragrans grandiflorus.—This is larger and brighter yellow than the old one; but it is by no means so sweet-scented. The old plant is much the best in this respect.—G.

Rare Chinese Hardy Plants.—I should like to know whether any of these plants (named in the interesting account of Xanthoceras in your last) are in cultivation:—Cedrela sinensis, Lessertia (with blood-red flowers), Clematis fruticosa, Sophora alopecurioides, a spring Bindweed (with rose flowers), a Rhamnus (with long linear foliage), Caryopteris mongolica.—H. N. ELLACOMBE, *Bitton Vicarage.*

Propagation of Mistletoe.—As, no doubt, many who live in districts where the Mistletoe does not grow naturally, will be asking how it may be induced to grow, we may state, that Mr. Syme, manager of the Lawson nurseries, tells us that the essential point is to cover the spots where the Mistletoe seeds have been rubbed on the branches, with gauze. If the seeds are sound, and show every sign of germination or growth, the chances are that they will be removed by birds unless the above-named precaution is taken.

THE KITCHEN GARDEN.

ADVANTAGE OF PLANTING EARLY POTATOES FOR MAIN CROPS.

The past season has given a further proof, if any were needed, of the wisdom of relying upon early, and second early, varieties of Potatoes for main crop planting, for, whilst all the early kinds turned out a fairly good crop, with little or no disease, most of the later sorts, with the exception of Late Rose and Red-skinned Flourball, have, in consequence of the increased rainfall, not only suffered much from the disease, but those that are free from it are very inferior in quality. The appearance of what was considered a new form of disease—but which, in reality, turned out to be an old one—caused some consternation among Potato growers, but except in reducing the bulk of the crop by the check it gave them in the midst of their growth, the mischief it did was not serious, and a more frequent change of seed will, I think, remove all cause for uneasiness in the future. By planting early kinds of Potatoes, a large portion of the crop might be cleared off, and the ground planted again with Cauliflowers for autumn, Turnips, Brussels Sprouts for spring, Onions, Spinach, &c., whilst, if late varieties are planted, there is little chance of taking more than one crop, and if that turns out to be an inferior one, as has happened in too many instances this season, the loss is still more severely felt. All land intended for Potatoes in spring should be manured and ridged up roughly without delay, exposing as much surface as possible to the action of the atmosphere. All kinds of charred refuse, soot, charcoal dust, and similar substances, form an excellent dressing for Potato land, whilst, if necessary, from 4 to 6 cwt. of super-phosphate may be put in with the seed at planting time. Very much heavier dressings are sometimes used with advantage, but this, to a great extent, depends upon the character of the season. In neither a very wet nor a very dry season are the best results obtained from artificial manures when used for special crops. E. Hobday.

THE CARROT CROP.

No garden vegetable is more indispensable than the Carrot, for it is used daily in the kitchen for a variety of purposes that cooks only understand; and yet it is one of the most difficult to grow successfully, as most cultivators know, and simply because of the numerous enemies which prey upon it from the time the seeds germinate till the crop is housed. The Carrot-louse attacks the young plants almost as soon as they appear, often doing much damage, like the Turnip-fly, if growth is retarded at the beginning. Then the Carrot grub is even more destructive, boring into the roots, and often ruining a whole crop, in spite of all precautions, as happened with many plantations last year. In addition to these pests, the wireworm, millipedes, and several other enemies, sometimes do much mischief, carrying on their destructive operations, even to the devouring of the seeds when they come to maturity. Could we steer clear of the various enemies to which it is subject, the Carrot is not fastidious as to soil, for it will thrive amazingly in peat, in a sandy soil, and in a middling heavy loam, though a stiff adhesive soil is the worst of all for it, or indeed any soil which obstructs the downward progress of its tapering roots. Though, like the Turnip, it prefers a good rich soil, it should never be sown on newly-manured ground, otherwise forked roots are sure to be the result. I always like to sow on ground that has been well manured the previous year for some other crop, such as Celery, Potatoes, Onions, or Peas, &c., but avoiding such crops as Cabbage and Turnips, or any of the tap-rooted section. The soil cannot be too well trenched and broken up before sowing; it should at least be double dug, as the roots of even the Short Horn varieties of the Carrots penetrate the soil to an incredible depth if they can get down. It is not the usable part only of the vegetables which represents the root, but the long tap feeder, which goes straight down into the moist soil beneath and pumps up the principal supply of moisture, and not unfrequently saves the crop in a dry season. Deep tillage will, for these reasons, therefore, always pay for a Carrot crop. In the early parts of the kingdom the crop will be sown perhaps by this time, but nothing is gained by sowing too soon. Between the beginning and middle of April is soon enough to sow the main crop in most situations, and there are many who do not get it in till the beginning of May. I have sown beds of James's Scarlet Intermediate and Altrincham the second week in June, and had a crop. I sowed the seed in this instance on the ground where the first sowing had been made, but which had been almost destroyed by the grub, merely forking the ground over again; yet the June sowing escaped, comparatively speaking. June is too late to sow, however; but I just state the fact. The consequences of too early sowing are that, if the seeds do germinate during a favourable spell of weather in March or April, they are almost sure to suffer a check afterwards from cold east winds and ungenial weather, and are then almost certain to fall a prey to the louse or the maggot. Carrots never do so well as when they start rapidly into growth, and get quickly into rough leaf; the chance of a good crop is then pretty certain. It is in every way better to sow Carrots in drills—the Horn varieties 6 inches apart, and the larger kinds 12 inches, each sort to be afterwards thinned out to these distances between the plants. Sowing Carrots broadcast is a practice I never could understand, considering how systematically drill-sown crops can be thinned and cleaned. Thinning is an important operation, and cannot be performed too soon. Carrots will make tops but no roots while they are crowded together, so that getting roots of a usable size early depends quite as much, if not more, upon thinning as upon sowing. Those who have to force Carrots understand this. As we can never be sure of escaping the maggot, it is not advisable to thin the plants too much at first. A partial thinning, as soon as the plants can be conveniently laid hold of, will do—the operation to be repeated two or three times as required till they have sufficient room. Timely thinning gives thick roots and short tops. I ought to have mentioned before that the seed should not be sown more than half-an-inch deep; and in heavy retentive soils it is an excellent plan to cover the seeds with a light, rich soil, scattering it along the drill by hand. This slight stimulant helps to hurry them past the critical stage. During the summer, hoeing between the rows with a Dutch hoe, just deep enough to break the "cake" on the surface, and kill the weeds, should be practised, and in dry weather a thorough deluging with water will be found beneficial; mere sprinklings are worse than useless. By November the crop may be stored away, though Carrots are always best when just out of the ground; but where great quantities are grown it is necessary to take up the main crop. In storing, the great object is to prevent fermentation, which is sure to take place if they are stored in a large heap; and, almost before it is noticed, they will be useless. I have them always built up in thin ridges, with a layer of sand between each layer of Carrots, in an open draughty shed, where they are neither likely to be frozen nor to ferment. I hesitate to recommend any preventives of Carrot grub or maggot other than I have pointed out in the May culture, *i. e.*, sowing at a favourable opportunity as regards weather, and where the soil is newly dug, deep tillage, and early thinning, taking special care to remove those plants which indicate the presence of the grub by their yellow leaves, at the earliest moment. I may state, however, that dusting with lime is the only likely remedy for the louse when it does appear, applying it in the same way as for slugs. A dressing of quicklime will also help to keep the grub in check if dug into the ground previous to sowing. J. S. W.

Seed Potatoes for Early Crops.—To have sets in good condition for early planting requires some care. If kept in large heaps at this season they grow prematurely, and, in removal, lose all their strongest shoots, and kidneys do not break again so readily or strongly as round or common sorts do. Seed of the Ashleaf, or of any other kidney kind, should be spread out in autumn in single layers, like Apples, on shelves. They should be kept quite cool but free from frost. Thus circumstanced, they will push slowly and sturdily, and the earliest varieties should be selected, as required, for forcing or early planting, and introduced to gentle heat and light, Potatoes being bad subjects for hard forcing. Those who have to purchase seed should lose no time in procuring it in order that the strongest buds may be secured, which is hardly possible if the sets are left until wanted for immediate planting.—J. Groom, *Henham.*

Growing Mushrooms in Sawdust.—In spring our hunters are all bedded down with sawdust, which, being allowed to remain for some days, or, for aught I know, some weeks, when it is taken out is found to be pressed hard together, so as to come away in large flakes, looking as much like mill-track spawn as anything that can be imagined. The bed I made up with material of this kind was 67 feet by 4 feet, in-doors, but without artificial heat. I began to gather in six weeks, and have had a good supply ever since. I may be told that sawdust creates or favours the growth of fungi, but I must remind those who make this objection that the dust is all from green sound wood, and the question is simply this, does sound wood sawdust generate fungus like old or decayed wood?—R. Gilbert, *Burghley.*

Coleworts in the London Market Gardens.—How is it that Coleworts are not more extensively grown than they are in private gardens; while in market gardens they may now be seen in thousands? They are available for use from October to March. As soon as a plantation of them is ready for market, the growers commence pulling from one end and making a clean sweep of the whole, tying the plants into bunches according to size. In this way a large extent of ground is speedily made ready for another crop, which will most probably consist of early Peas. Coleworts are sown early in spring, and the plants are strong and ready for planting out by the time a plot of early Potatoes or Peas has been cleared. The ground is ploughed and harrowed to make it friable, and the plants are dibbled in about 12 inches apart each way. The London Market Colewort, comes remarkably true from seed, and as a table vegetable it is excellent, being tender and soft when cooked.—Alex. Dean, *Bedfont.*

A New French Potato, Delices de Meaux.—The "Revue Horticole" accords to this new seedling Potato the following three qualities, "Earliness, quality, and productiveness." This kind was obtained from the Marjolin, the earliest Potato grown in France, fertilised by the Long Violet, two as good parents as one can find; nevertheless, the offspring is said to excel both. It most resembles in external appearance the female parent—Marjolin. It is, however, earlier by about fifteen days; its stems are shorter, furnished with fine broad leaves, rounded, smooth, and shining; it is also much more productive. As to qualities, it partakes also of those of both its parents; it has nearly the form of the Marjolin, but its flesh is finer, more dense, and less watery; it is also more yellow. In these respects it resembles the Violet, to which it is, however, superior. Another quality of this new seedling is, that while of all Potatoes it is probably the earliest, it germinates relatively late. Perhaps some of our Potato growers will give it a fair trial in some of the many experiments with Potatoes which are now being carried out. It was raised by M. Quertier, of Meaux, and may, no doubt, be obtained through our seed merchants.—B.

A New Way of Growing Horse Radish.—Few culinary productions are more appreciated than clean straight sticks of Horseradish, and I find that these may, by the adoption of the following method, be easily produced in ten months, when they will measure from 5 to 8 inches in circumference. During February, take small straight pieces of the roots about the size of, or somewhat smaller than, the little finger; from these remove all the side shoots and roots, and form them into straight sets from 8 to 14 inches long. Prepare a piece of ground by deeply digging and well manuring it, and plant the sets in it in rows, 3 feet apart, and from 12 to 18 inches in the rows. The sets must be planted in a slanting position, and must not be more than 2 inches beneath the surface. The ground at all times must be kept free from weeds, and should be well watered in very dry weather. Planting the set at an angle—in fact in nearly a horizontal position—is, no doubt, the great secret of success, for, being placed so near the surface, it has the full benefit of the sun's heat, which causes it to make rapid growth long before that which is planted according to the old method—*i.e.*, from 18 to 20 inches deep, and in a perpendicular position—reaches the surface. I am certain that want of success is alone to be attributed to this, and that the experience of any of your readers who may think fit to adopt my plan will be the same as my own.—H. Ellis.

NOTES AND QUESTIONS ON THE KITCHEN GARDEN.

French Beans—Old v. New Seed.—For forcing, I find that old seed, say two years old, is better than new. This I have conclusively proved. New seed grows too strong, while plants raised from that which is old are stocky and compact, and, of course, bear better crops.—R. Gilbert, *Burghley.*

The Failure of Winter Spinach.—The failure in the Winter Spinach crop' of which "J. M." complains, is common this season, and is doubtless due to the excessive rainfall in autumn. About here, in the market gardens, I have seen acres affected in the same way. The plants suddenly turn yellow and then die off. When they are pulled no trace of wireworm is visible, but the small rootlets are decayed. All the market gardeners here attribute the failure to excess of moisture.—A. D., *Bedfont, W.*

—— In the last number of The Garden a correspondent complains of his Spinach dying off; mine has nearly all gone off in the same manner. It first began to perish in a spot about 5 or 6 inches square, while most of the bed was in perfect health. The disease, or whatever it may be, kept gradually spreading, and does so still, so that the whole bed is now nearly destroyed. The preceding crop was early Potatoes.—W. B., *Preston Hall.*

—— I have no doubt that your correspondent "J. M." (p. 534) will find that the failure of his winter Spinach this year is caused by the excessive rainfall in October and November. The soil of the kitchen garden here being very strong and adhesive, in very wet autumns I have had the Winter Spinach turn yellow and go off in the same way as "J. M." describes. I now find that by sowing it in rows on the tops of ridges, and using some fine mould to cover the seeds, the plants are healthy and stand wet weather in the winter without failing. Winter Spinach is so valuable a crop that a little extra trouble and expense in preparing the soil and situation for it is not thrown away.—William Tillery, *Welbeck.*

Greengage Tomatoes.—I have grown this Tomato extensively this year, and think that, from its fine flavour, it will be the best variety for making soups. The prejudice against it in the markets arising from its colour, is no doubt the present cause of its not selling so well as others. I grew some of it in pots this year, along with the Orangefield Dwarf Red, and had a good supply of its fruit all summer and autumn, I could therefore test its flavour with the others. When grown out of doors, unless the summer is very favourable, it will not ripen so early as the Orangefield or Trophy, and therefore it should be planted out in a strong state in early summer and placed in favourable positions.—William Tillery.

THE LIBRARY.

FLORAL DECORATIONS FOR DWELLING-HOUSES.[*]

This charming little volume is illustrated by upwards of fifty wood engravings. It is conveniently divided into twenty-four chapters, in which we find pleasantly-written and clear directions for the arrangement of flowers and foliage for every kind of indoor floral decoration, to which are added chapters upon bouquets of all kinds, Ferns and Fern cases, and kindred subjects. Miss Hassard is well known as a writer upon these subjects, and also in connection with floral decorations at our principal metropolitan exhibitions where her services are gladly secured to award prizes to the most successful arrangements, while many of her own tasteful compositions have secured the principal prizes offered in London and elsewhere. There are schools in the arrangement of flowers and plants for decorative purposes just as there are schools in painting, and Miss Hassard's school is one of the simplest and best, her arrangements being always light and pleasing, and she was one of the first to teach us that Orchids and rare stove flowers closely packed on heavy gilded epergnes along with fruit, were neither tasteful nor economical, since one must either forego the pleasure of eating the fruit or destroy the arrangement of the flowers. Some of Miss Hassard's prettiest tables have been almost entirely decorated with wild flowers and native Grasses, with, perhaps, a spike of Chelone or Pentstemon, lightly arranged in the upper vases, and pearly Water Lilies on a bed of cool Ferns and wood Moss below. In fact, the authoress brings much of the sweetness and freshness of the fields, woods, and sunny lanes into the house, and shows us how the spoils of a country ramble may be tastefully arranged as household ornaments, and this, as we take it, is the best kind of table decoration. We do not say one word against the opinions of those who prefer Orchids—indeed, Miss Hassard gives many easily-to-be-followed directions as to their use and arrangement along with choice tropical Ferns and rare Palms. Let all who have choice Orchids and rare Ferns use them tastefully and make the most of them as domestic ornaments, since few flowers and foliage plants are more lovely; but we must not lose sight of the great fact that by many these are unattainable, and wherever this is so let a handful of wild Grasses, a glorious purple Iris, a white Lily, a spray of hardy Fuchsia, or the many other lovely inhabitants of every cottager's garden, be substituted and arranged or grouped in the most tasteful manner possible, just as Van Os and Van Huysum grouped them on the canvas a century or two ago. A combination of Violets and Snowdrops arranged in a shallow glass, or even in a tea-saucer, along with a few bits of Fern or other leafage, will bear comparison with any other arrangement of flowers. The general get up of the book is excellent in every way; the bright little initial letters and tail pieces from the pencils of Mr. Noel Humphreys and M. H. Giacomelli being especially noticeable for their artistic excellence, while the type and paper are both of the best description. The cover is gracefully designed, and we can confidently recommend this little manual as being eminently suitable as a guide to the artistic adornment of our dwellings with flowers; while it is one of the prettiest presents that could well be made to those who are interested in the subject. F. W. B.

Effeminacy and Flowers.—Very foolish was the custom of sleeping on Rose leaves, although, in the days of ancient Rome, a common one—the couches sometimes being heaped several feet high. Even Cicero must sleep on Roses and Violets. Propertius must even be buried in them, for in that case, as he sings, the earth would lie lightly on him. An effeminate Roman complains of the folded Rose leaves on his couch hurting him. The Proprætor Verres in Sicily was carried about on a litter resting on cushions filled with Rose leaves, and a bouquet of Roses had to be carried before him. The supply of Roses at Rome must at that time have been very great. Pæstum sent most, and after it Egypt, where the Roses of Cyrrhene were at that time renowned. Great vessels came to Rome, laden only with Roses.—Karl Koch.

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[*] "Floral Decorations for Dwelling Houses." By Annie Hassard. 8vo, pp. 163. Macmillan & Co.

THE LATE M. ANDRE LEROY.

The following short but interesting memoir of the late M. André Leroy is from the pen of M. A. Lavallée, in the "Journal of the Horticultural Society of France:"—Everyone knows the name of the celebrated nurseryman of Angers, M. André Leroy; but a large number of persons are not familiar with his life; and few, we believe, are aware how he formed his immense nurseries. We believe we shall be doing a service to the public by making known the principal events in the life of this remarkable man, of whom the memory will not be forgotten by all those who are engaged in horticulture, and, above all, in pomology or arboriculture. Born at Angers on the 30th of August (St. Fiaeré's Day, the patron saint of gardeners), 1801, M. A. Leroy was the son and grandson of nurserymen. He lost his father at the age of seven years, and entered the Lycéum, which he left at the age of sixteen to study practical gardening. At eighteen he went to Paris with the desire to extend his knowledge. He was the bearer of a letter from M. Pilaster to his friend André Thouin, member of the Institute and cultural professor at the Muséum of Natural History at Paris. The latter received him with kindness, and put him into communication with his nephew, Oscar Leclerc Thouin, who afterwards became professor of agriculture at the Consérvatoire des Arts et Métiers. The two young men studied together, and became close friends. Through the instrumentality of André Thouin, of his nephew Oscar Leclerc, and of the famous naturalist Bosc, he made the acquaintance of many botanists, pomologists, and naturalists, with whom he held the best relations until his death. After having passed several years at the Jardin des Plantes at Paris, André Leroy returned to the home of his mother, took the management of her business, and put in practice the excellent lessons which he had learned; and he had the good fortune to see his work crowned with success. Founded, in 1780, when there were but few large plantations, the establishment of M. Leroy comprised only about 2½ acres of ground. The nurseries, although considerably enlarged by his mother, appeared still too small for the subject of this memoir, and he increased them to a size until then unknown. But his task was only half completed. He undertook numerous journeys with a commercial aim, and for the purpose of instructing himself by a personal inspection of what was being done in other countries, and to bring back with him ideas by which science and his numerous clients might profit. He travelled in France, England, Belgium, Holland, Germany, Italy, and Switzerland, and always brought back new plants and trees that he had met with. These journeys also had other results for M. Leroy. From them he drew happy inspirations for his work as a landscape gardener. In fact, it is not sufficiently known that Anjou, La Vendée, and Poitou, are indebted to him for many creations of this kind which have been much admired. Like the Americans, always advancing, his vast nurseries increased at a more rapid rate than the demand for their contents; and, in 1847, André Leroy conceived the idea of establishing a house in Paris. He was in treaty for a piece of ground on which to establish this branch when the revolution of 1848 broke out, and was obliged to renounce the project which he had nursed for so long, and endeavour to find an outlet for the millions of trees that were threatened with destruction if he could not find a market for them. He could scarcely hope to do this in any country in Europe; and he could only wait one or two years. Under these circumstances, M. A. Leroy threw his glance towards the United States, and thither sent M. Baptiste Desportes, who was able to open in that vast country a large outlet for all kinds of arboricultural products. An establishment was created at New York to receive orders, and direct the goods into the interior of the United States. From a thousand to twelve hundred cases of trees were thus despatched every year for this country. Each case contained 300 fruit trees, or a considerable number of young two-year-old seedlings. From this period, M. Leroy's establishment became so extensive that it was the largest nursery, not only in France, but in the whole world. It covered more than 480 acres, and gave employment to 300 men. The number of varieties of fruit trees rose to above 3,000, and that of ornamental trees and shrubs was also very considerable. Conifers are cultivated at M. Leroy's establishment in large quantities, even the most rarer kinds. We have seen several thousand plants of Araucaria imbricata, more than ten thousand of Cedrus Deodara, Cryptomeria japonica, Abies Morinda, Pinus excelsa, Cupressus torulosa, and others, by thousands. M. A. Leroy published his descriptive and analytical catalogues in five languages—French, English, German, Italian, and Spanish. In 1866 appeared the first volume of a popular work on Pomology, in five volumes, which was rendered all the more interesting from the circumstance that M. Leroy himself had in his collection a specimen of each kind. Three other volumes have appeared since the fifth—containing stone fruits—has been in the press. M. Leroy took an active part in exhibitions, both at Angers, his native town, and at Paris and abroad. He was made Chevalier of the Legion of Honour during the International Exhibition of 1855 at Paris. He was one of the original members of the Industrial Society at Angers, for a long time was Administrator of the branch of the Bank of France, and belonged to a large number of horticultural, botanical, agricultural, and industrial societies, both French and foreign. Such is the man of whom death has robbed us. He needs no greater panygric than is expressed in the words, "He contributed powerfully towards the development of pomology and arboriculture in France."

Walnuts in Salt.—Having tried to keep Walnuts in such a condition that the substance surrounding the kernel would peel off, say at Christmas or afterwards, I confess to not having been so successful as I could wish, although I have tried all the plans that I could hear of. I even tried bottling some and sinking them in water, or rather filling some jars with them, corking them up and placing them in water, but the result was not satisfactory. Packing them in sand was strongly recommended some twenty or more years ago, but it was not an easy matter to get the sand out of the wrinkles of the shell, even with a brush and water. Bran did not answer at all, and dry wood ashes seemed to have an unpleasant habit of clinging to the shell, without in the least increasing the keeping qualities of the kernel. I was lately induced to try salt, and filled a jar with alternate layers of Walnuts and dry salt—a plan which I certainly prefer to sand, owing to the difficulty of getting rid of the latter; still neither of these plans secure the fresh taste possessed by the Walnut when gathered from the tree, and the inner skin, if we may call it so, does not peel off well. I have found no plan so good as that I recommended some dozen years or more ago, but to the discovery of which I lay no claim. As, however, it may not be known to all I will mention it here. It consists simply in keeping the nuts in as cool a place as can be had. Each day as they are wanted for table, take some and slightly crack the shell in one or two places—if a piece comes off no matter—and put them in warm water for an hour or so. Afterwards take them out and put them in cold water with a little salt in it. The cold water restores the crispness, which the warm water had in some degree injured, and the nuts eat as well or nearly so as when fresh gathered, the inner skin peeling off quite readily.—A Kentish Gardener.

NOTES AND QUESTIONS—VARIOUS.

Meg Merrilees Chrysanthemum.—This is one of the best Japanese kinds. Its flowers, which are curiously formed, are of immense size; and pale sulphur in colour. It makes an excellent standard. Indeed, in any form, it has a showy appearance.—J. Muir.

The best Silvery Echeverias.—Two of the most effective Echeverias are E. formosa and E. pulverulenta, both natives of California, and distinguishable by their white mealy leaves. Of the two, the best is pulverulenta, which has broad flat leaves mucronate at the apex.—B.

Tulips and Wireworms.—In taking up my Tulips last summer, I found a great many wireworms amongst them; indeed, they seemed to be holding a kind of congress in my Tulip bed. In dressing the bulbs later on, however, I did not find a single one injured. Hence I conclude that Tulips are safe as regards wireworm.—G. F., *Hexham.*

A New Griffinia.—Mr. Bull has now in flower a new species of Griffinia, which bears from one to three spikes of white or delicately rosy-tinted blossoms, something like those of Nerine pudica, but larger in every way, and more effective. As a winter-flowering stove or warm greenhouse bulb, this promises to be a most desirable plant.—B.

Pruning Cloth of Gold Rose.—In The Garden of the 11th inst. a correspondent asks how to treat Cloth of Gold Rose. If he will cut out all weak and very strong shoots, reserving such as are about as thick as his little finger and well ripened, and lay them in thinly nearly their entire length, merely cutting off the weak points, he will have an abundance of bloom next season.—W. B., *Preston Hall.*

Potatoes Planted Deep.—We "Cultivator" tried the experiment this year, on several alternate rows of Potatoes about 30 rods long, of planting a part about 2 or 3 inches deep, and another part 5 inches deep. The latter produced 20 to 25 per cent. more Potatoes than those that were planted shallow, the treatment in every other respect being the same. They were cultivated on the flat system which always gives more than when ridged.

The Tomato Disease.—"The American Gardeners' Monthly," in quoting our account of the Tomato disease around London says: "So far as we know there has been nothing of this character seen in the United States. Occasionally we have seen Tomatoes suffer, however, from the fungus known as Verbena rust." It is instructive to know that the Tomato fungus does not thrive in the drier climate of America. Would Mr. Meehan kindly tell us to what extent the Potato disease exists in America.

The Gardener's Royal Benevolent Institution.—The Rev. Canon Hole begs to commend to his floral brethern, who are members of this Charity, the case of Francis Herrod, who is a candidate for election in January next, and who has been for thirteen years a subscriber of £1 1s. to the institution.

Pitmaston Duchess Pear.—This, which is sometimes called Williams's Duchess, is one of the best Pears in cultivation, either on walls, pyramids, or espaliers, and it does well on any stock, but especially so on the Quince. Seven fruits of it, borne by a very young tree this year, weighed whe gathered 4½ lbs.—H. Walker, *Derry.*